ENGINEERING INVESTIGATIONS AT INACTIVE HAZARDOUS WASTE SITES

PRELIMINARY SITE ASSESSMENT EVALUATION REPORT OF INITIAL DATA

Great Lakes Carbon Site
City of Niagara Falls

Site No. 932016
Niagara County

Prepared for:

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OCTOBER 1993

NYSDEC SUPERFUND STANDBY CONTRACT
WORK ASSIGNMENT NO. D002472-6.1

PRELIMINARY SITE ASSESSMENT EVALUATION REPORT OF INITIAL DATA VOLUME I

GREAT LAKES CARBON SITE
CITY OF NIAGARA FALLS, NEW YORK

SITE NO. 932016

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GREAT LAKES CARBON
PRELIMINARY SITE ASSESSMENT
EVALUATION REPORT OF INITIAL DATA

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EXECUTIVE SUMMARY

The Great Lakes Carbon (GLC) Site, Site No. 932016, is located on the 36-acre GLC manufacturing facility, 6200 Niagara Falls Boulevard, City of Niagara Falls, New York. The area of the facility under investigation is a 7-acre inactive landfill on the GLC property. GLC manufactures carbon and graphite products. Between 1939 and 1966, GLC disposed of approximately 79,000 cubic yards of industrial wastes in the landfill. Wastes generated since 1966 have been disposed off site. Materials placed in the landfill included construction debris, coal dust, carbon graphite, solid pitch mold stock wastes, electrodes, refractory sand, and wood (E.C. Jordan Co., 1991). The landfill is uncovered except for the southern slope, which has been graded and vegetated with grass. There is no synthetic or clay liner under the landfill.

Capacitors and transformers with polychlorinated biphenyl (PCB) oils have been stored on the top of the landfill area. The liquids contained in these equipment were drained, drummed, shipped, and disposed off site by SCA Chemicals. There were no capacitors on site during the Task 3 field investigation. Five transformers were observed, stored on top of the landfill, during the October 1992 Task 1 investigation in 1990; however, three were removed and the others kept as spares.

The GLC landfill is a suspected inactive hazardous waste site recognized by New York State Department of Environmental Conservation (NYSDEC) on the Registry of Inactive Hazardous Waste Sites. The site is currently listed as a Class 2a site indicating there is insufficient information to document hazardous waste disposal and/or assess the significance of potential risks to public health or the environment.

ABB Environmental Services (formerly E.C. Jordan Co.), under contract to NYSDEC, conducted a Preliminary Site Assessment (PSA) Task 3 investigation to evaluate whether the wastes disposed of at GLC are hazardous and to assess the significance of potential risks to public health and the environment.

During Task 3, eight test borings were completed on site, two (i.e., TB-101 and TB-102) for the installation of groundwater monitoring wells and six (i.e., TB-103 through TB-108) to collect subsurface soil samples. Of the six borings drilled for sampling purposes, five were located in the landfill. The sixth boring (TB-108), in the lawn to the east of the GLC office building, served as a background sample. One of the landfill samples, located near the transformer storage area (TB-103), was only analyzed for PCBs. The remaining subsurface soil samples were analyzed for Target Compound List (TCL) volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), pesticides, and PCBs. In addition, these subsurface soil samples were also analyzed for hazardous waste characteristics, including Extraction Procedure (EP) Toxicity (metals only), reactivity, ignitability, and corrosivity. The results of these analyses were used to establish whether hazardous waste, as defined by 6 New York Codes, Rules, and Regulations (NYCRR) Part 371, was disposed in the landfill. None of the subsurface soil samples failed hazardous waste characteristics testing.

To evaluate any potential risk to public health or the environment from groundwater contamination, two groundwater monitoring wells were installed in test borings TB-101 and TB-102. Well MW-102 was located downgradient of the landfill and MW-101 was located downgradient of a 55-gallon container storage area. Two groundwater samples were collected from these wells and analyzed for TCL VOCs, SVOCs, pesticides, PCBs, and inorganics. These data were compared

to New York State Class GA Groundwater Quality Standards (i.e., standards promulgated for groundwaters suitable as a source of potable water). No organic compounds were detected at concentrations greater than the Contract Required Quantitation Limit. Inorganic elements detected at concentrations greater than Class GA standards included iron, manganese, and sodium. Although Class GA standards are set for the protection of groundwater, iron, manganese, and sodium, do not commonly pose any significant risk to public health. The more stringent state and federal standards (i.e., New York State and U.S. Environmental Protection Agency Maximum Contaminant Levels) for protection of drinking water supplies have only promulgated secondary standards for these compounds for aesthetic quality of drinking water.

Four collocated surface water and sediment samples were collected from several points within the GLC facility, three sets (SW/SD-101, SW/SD-103, and SW/SD-104) from Pikes Creek and one set (SW/SD-102) from a sump in one of the manufacturing buildings. The surface water samples were analyzed for TCL VOCs, SVOCs, pesticides, PCBs, and inorganics. For purposes of a State Pollution Discharge Elimination System permit, Pike's Creek and downgradient sewer system are classified as a Class D surface water body (Hinton, 1993). Class D surface water quality is defined as suitable for fish survival as well as primary and secondary contact recreation although other factors may limit the use of waters for these purposes. Therefore, the results of these analyses were compared to New York State Class D Surface Water Quality Standards to evaluate whether the landfill wastes were impacting the creek and posing any potential risk to public health and the environment. The purpose of the sump sample was to evaluate what contaminants, if any, are contributed to Pikes Creek from the manufacturing facility rather than from the landfill. Total phenols, copper, and

iron were detected in surface water samples at concentrations greater than Class D standards; however, the highest concentrations of phenols and iron were detected in the upgradient sample collected where Pikes Creek crosses the northern property boundary of the GLC facility. Because the Class D standard for phenols and iron were exceeded in the upgradient sample, this contravention of standards was interpreted not to relate to the landfill. The contravention of the copper standard was detected in sample SW-103, but not it's duplicate. Because this sample was collected from a point where stormwater sewers of the GLC facility converge, it can not be established whether this contravention of standards represents an impact from the landfill.

The three sediment samples collected from Pikes Creek (SD-101, SD-103, and SD-104) were analyzed for TCL VOCs, SVOCs, pesticides, PCBs, and inorganics. Sample SD-102, collected from the sump was only analyzed for characteristics of hazardous waste including EP Toxicity (metals only), ignitability, reactivity, and corrosivity. Evaluation of sediment samples SD-101 and SD-104, collected from Pikes Creek, identified benzo(g,h,i)perylene, aluminum, iron, and magnesium as the only constituents that were detected at concentrations in SD-104 greater than the upgradient sample SD-101. Compounds detected in downgradient sample SD-103, collected from Pikes Creek, were not considered representative of potential impacts from the landfill because the sample was collected from a converging point in the GLC storm water sewer system and potentially reflected chemical contamination from all parking lots and roadways throughout the facility. Sump sample SD-102 passed all characteristics tests.

Based on information developed during the PSA Task 1 and Task 3 investigations at the GLC Site, it is recommended that the site be removed from NYSDEC's

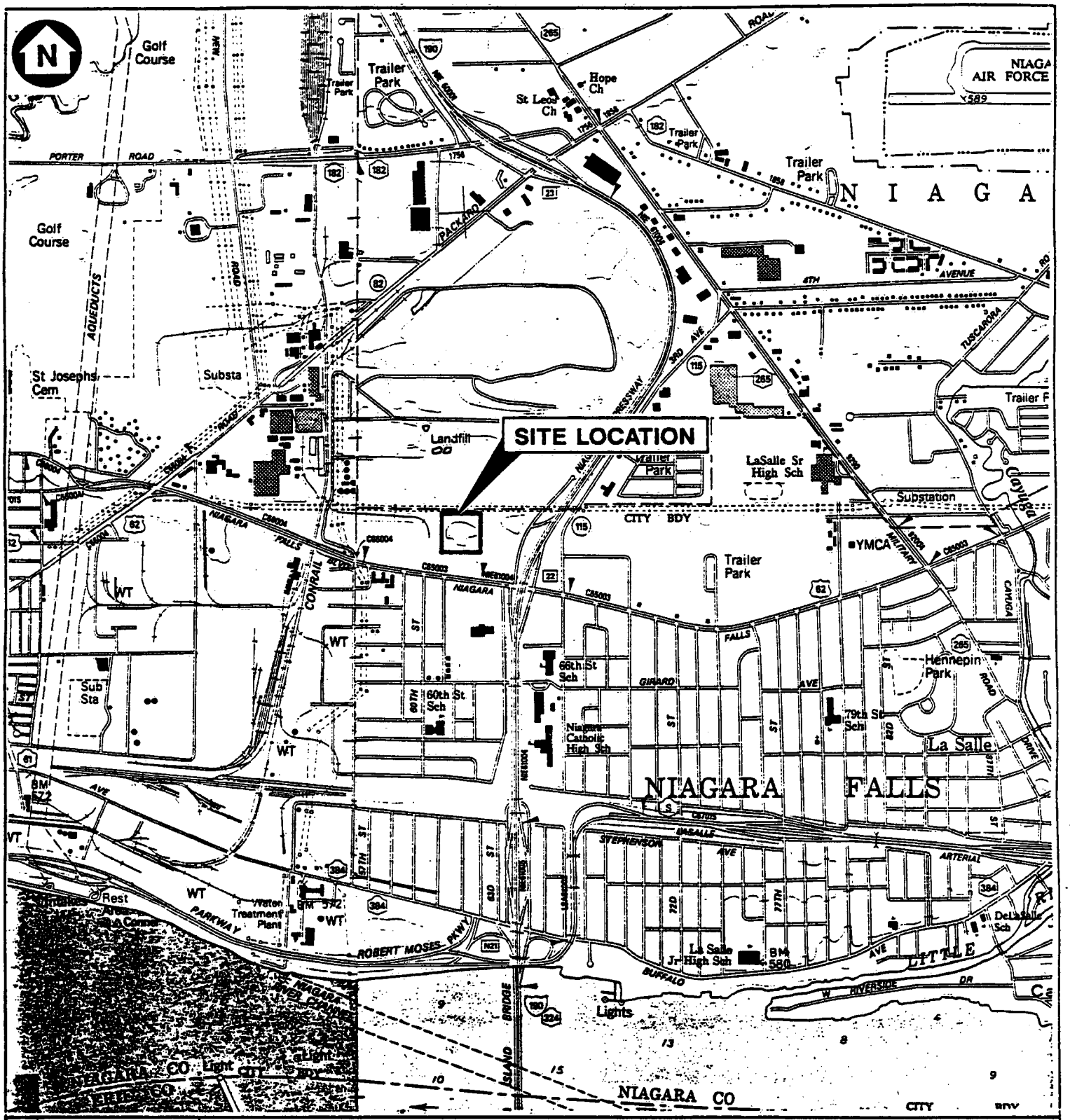
Registry of Inactive Hazardous Waste Disposal Sites in New York State. No documentation was identified during Task 1 to indicate that a listed waste, as defined in 6 NYCRR Subpart 371, was disposed on the site. Results of the Task 3 sampling and analysis indicate that samples collected from the landfill did not exhibit any characteristics of hazardous waste, as defined in 6 NYCRR Subpart 371. Although minor exceedances of New York State Groundwater and Surface Quality Standards were identified, those exceedances were interpreted as not posing a significant threat to public health or the environment. Therefore, it is recommended that the GLC Site be delisted, and further investigation under PSA Tasks 4 through 6 is not warranted.

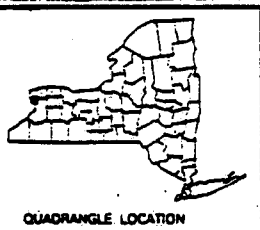
1.0 PURPOSE

ABB Environmental Services (ABB-ES) is submitting this Evaluation Report of Initial Data to the New York State Department of Environmental Conservation (NYSDEC) for continuing work on the Preliminary Site Assessment (PSA) at the Great Lakes Carbon (GLC) Site located in the City of Niagara Falls, New York (Figure 1-1). This report was prepared in response to Work Assignment No. D002472-6.1 and in accordance with the requirements of the NYSDEC Superfund Standby Contract (NSSC) No. D002472, dated November 1989, between NYSDEC and ABB-ES (formerly E.C. Jordan Co.).

The GLC Site is a suspected inactive hazardous waste site recognized in the NYSDEC Registry of Inactive Hazardous Waste Disposal Sites in New York (NYSDEC, 1992b). The site, No. 932016, was assigned a Class 2a classification because of insufficient information exists regarding the nature of wastes disposed in the landfill. Upon completion of Task 1, a recommendation could not be made to reclassify the site because the information collected and reviewed by ABB-ES was insufficient to document the disposal of hazardous waste at the site or to establish whether the site posed any potential significant threat to public health or the environment (E.C. Jordan Co., 1991).

ABB-ES completed Task 2, preparation of Site Work Plans for the GLC Site, in September 1992 (E.C. Jordan Co., 1992c). ABB-ES prepared a scope of work for the Task 3 field investigation program to develop data necessary to reclassify the site according to guidelines set forth under Title 6 of the New York Codes, Rules, and Regulations (NYCRR) Part 375 (NYSDEC, 1992c). The PSA activities were





SOURCE: N.Y.S. DEPARTMENT OF TRANSPORATION, NIAGARA FALLS AND TONAWANDA WEST QUADRANGLES DATED 1989, 7.5 MINUTE SERIES

SITE NO: 932016
LOCATION: CITY OF NIAGARA FALLS
NIAGARA COUNTY

SCALE IN FEET

0 2000 4000

FIGURE 1-1
SITE LOCATION MAP
GREAT LAKES CARBON SITE
PRELIMINARY SITE ASSESSMENT
NEW YORK STATE DEC

ABB Environmental Services

7084-30

conducted to conclude with a recommendation to reclassify the GLC Site to one of the following categories:

Class 2 - Hazardous waste sites presenting a significant threat to public health or the environment, defined by NYSDEC as sites that had a release(s) resulting in violation of NYSDEC environmental quality standards and guidelines.

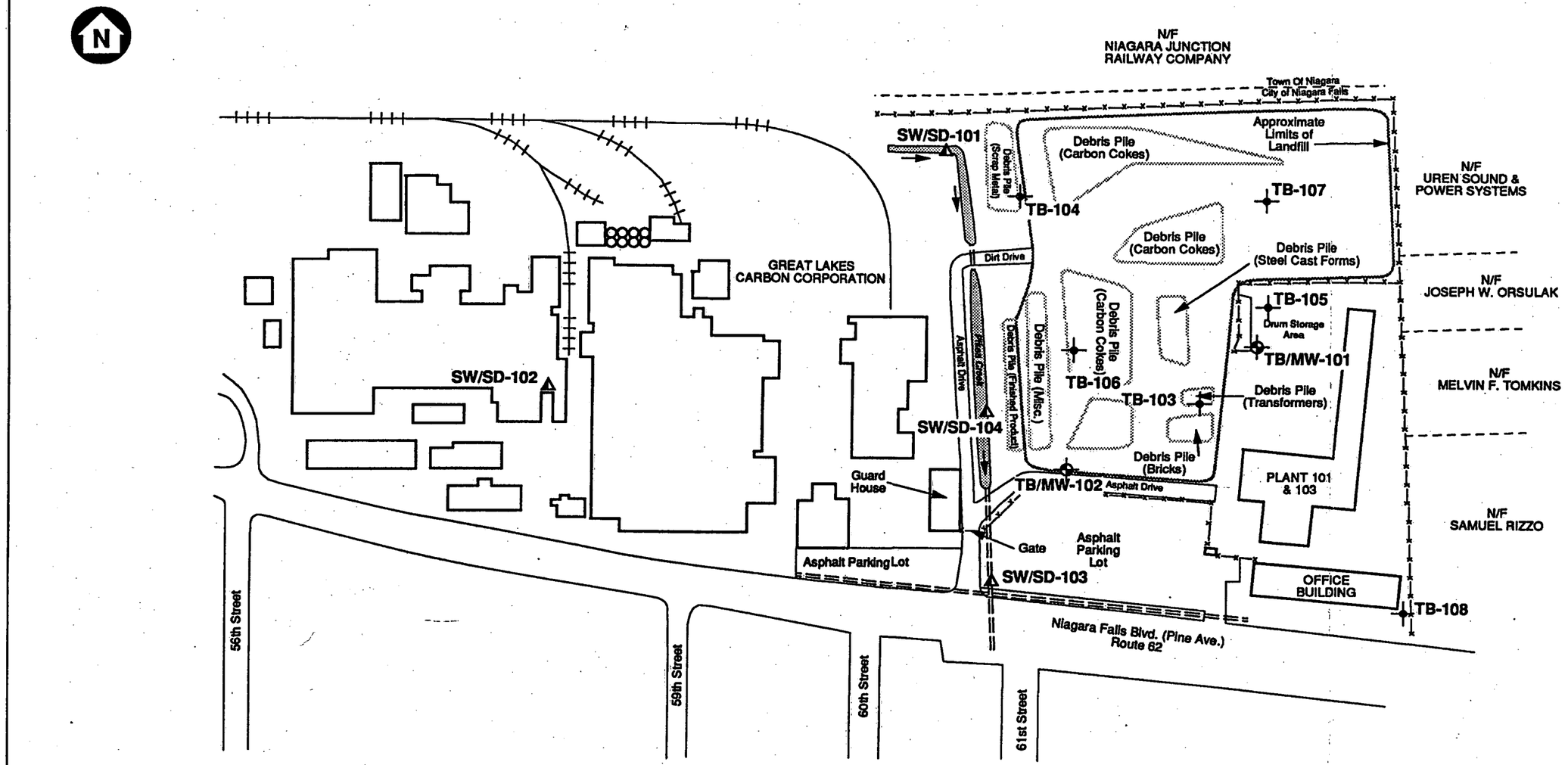
Class 3 - Hazardous waste sites not presenting a significant threat to public health or the environment.

Delist - Sites where hazardous waste disposal is not documented.

Task 3 sampling locations are shown in Figure 1-2. The Task 3 investigation included:

- Collection of eight subsurface soil samples to provide data to assess whether materials disposed of in the landfill are hazardous as defined by New York State Hazardous Waste Regulations 6 NYCRR Part 371 (NYSDEC, 1992a).

- Drilling, installation, and development of two monitoring wells and collection of groundwater samples. Groundwater analytical results were compared to New York State Class GA Groundwater Quality Standards, set forth under 6 NYCRR Parts 700 - 705 (NYSDEC, 1991), to establish whether there has been a contravention of these standards.



NOTES:

1. ALL LOCATIONS ON MAP ARE BASED ON A SCALED COORDINATE SYSTEM FROM THE U.S.G.S. QUADRANGLE TONAWANDA WEST.
2. ALL PROPERTY LINE AND R.O.W. INFORMATION SHOWN ON MAP WAS DETERMINED BY CURRENT TAX MAP INFORMATION ONLY.
3. BUILDINGS TO WEST OF GUARD HOUSE WERE NOT SURVEYED AND ARE BASED ON SITE PLANS FROM PRIOR INVESTIGATIONS.
4. SW/SD-102 WAS NOT SURVEYED, LOCATION IS APPROXIMATE.
5. N/F = NOW OR FORMERLY.

LEGEND

- MONITORING WELL LOCATION
- SURFACE WATER/SEDIMENT SAMPLE
- TEST BORING
- PIKES CREEK ABOVEGROUND
- PIKES CREEK UNDERGROUND (i.e., Sewer)

APPROXIMATE
SCALE IN FEET

0 200 400

BASE MAP SOURCE: NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION MAP ENTITLED "SUPERFUND STANDBY CONTRACT AT GREAT LAKES CARBON, SITE NO. 3. NIAGARA FALLS, N.Y."; PREPARED FOR E.C. JORDAN CO., PORTLAND, MAINE; SURVEYED BY OM P. POPLI, P.L.S., ROCHESTER, N.Y.; DATED 12/92.

FIGURE 1-2
SITE PLAN AND
SAMPLING LOCATIONS
GREAT LAKES CARBON SITE
NEW YORK STATE DEC
ABB Environmetal Services

9301060D

- Collection of four collocated surface water/sediment samples, three sets from Pikes Creek and one from a sump in one of the GLC manufacturing buildings. For purposes of a State Pollution Discharge Elimination System (SPDES) permit, Pike's Creek and downgradient sewer system are classified by NYSDEC as a Class D surface water body (Hinton, 1993). Therefore, surface water data were compared to New York State Class D Surface Water Quality Standards, set forth under 6 NYCRR Parts 700 - 705 (NYSDEC, 1991), to establish whether there has been a contravention of these standards.

- Development of a base map for a site survey, illustrating the locations of test borings, monitoring well, surface water and sediment samples, and major site characteristics.

Task 3 activities are reported in two volumes. Volume I presents the project purpose, description of the Task 3 scope of work, the results of the Task 3 activities, and final recommendation for reclassification of the site. Included in Volume I are Appendix A, Registry Site Classification Decision Form, Appendix B, Site Inspection Form, U.S. Environmental Protection Agency Form 2070-13, and Appendix C, New York State Class D Surface Water Quality Standard Calculations. Volume II contains field data records and laboratory results.

2.0 SCOPE OF WORK

2.1 SITE RECONNAISSANCE

As part of the Task 2 Site Work Plan development, ABB-ES personnel made a site reconnaissance of the GLC Site on March 31, 1992, with Mr Yavuz Erk, from NYSDEC's Region 9 office, and Mr. Paul Dickey, from the Niagara County Health Department. There were no major changes to the site since the July 1990 Task 1 walkover.

2.2 FILE REVIEWS

ABB-ES personnel conducted Task 1, Data Records Search and Assessment at the site in 1990 (E.C. Jordan Co., 1991). ABB-ES did not review any additional file information during preparation of this report.

2.3 GEOPHYSICAL SURVEY

ABB-ES did not conduct a geophysical survey at the GLC Site during Task 3.

2.4 ENVIRONMENTAL SAMPLING

The following subsections describe the Task 3 sampling activities completed on October 14 and 15, 1992. ABB-ES conducted the field investigation in accordance with the scope of work set forth in the Site Work Plan (E.C. Jordan Co., 1992c), specifications presented in the NSSC Program Quality Assurance Project Plan (QAPP) (E.C. Jordan Co., 1992a), and the site-specific QAPP (E.C.

Jordan Co., 1992c). The health and safety procedures for all on-site activities were in conformance with the NSSC Program Health and Safety Plan (HASP) (E.C. Jordan Co., 1992b) and site-specific HASP (E.C. Jordan Co., 1992c). Task 3 environmental sampling was conducted using Level C dermal personal protective equipment.

Analytical data developed by ABB-ES during the Task 3 investigation meet the data quality objectives set forth in the site-specific QAPP and are suitable for site reclassification. A complete list of laboratory analytical data developed during Task 3 is presented in Volume II. Data validation and usability documentation are included therein.

2.4.1 Subsurface Soil Sampling

During Task 3, eight test borings were completed on site, two (TB-101 and TB-102) for the installation of groundwater monitoring wells and six (TB-103 through TB-108) to collect subsurface soil samples. Analytical samples were not collected from TB-101 and TB-102 because these borings were located downgradient of waste disposal and storage areas and subsurface soils of these borings would not likely represent waste materials or contaminated soils. Six shallow subsurface soil samples, TB-103 through TB-108, were collected from the following locations (see Figure 1-2):

- TB-103: near the transformer storage area
- TB-104: near the scrap metal pile in the northwest section of the landfill
- TB-105: near the 55-gallon container storage area

- TB-106: near stockpiled finished products in the southwest section of the landfill
- TB-107: in the north-central section of the landfill
- TB-108: background sample, to the east of the main office building

Of these six samples, four (TB-104 through TB-107) were collected with the aid of a drill rig and the two remaining borings (TB-103 and TB-108), located in areas not accessible by the drill rig, were collected with a hand auger. Hand auger samples TB-103 and TB-108 were collected from 2 and 4 feet bgs, respectively.

To drill borings TB-104 through TB-107, drilling services were provided by Parratt-Wolff, Inc. (Parratt-Wolff) of West Syracuse, New York. Borings were advanced to a depth of 6 feet below ground surface (bgs) with continuous sampling every 2 feet. Boring TB-107 was advanced to only 5.5 feet bgs because of difficulty driving the first split-spoon. The first sample in each boring, from the surface to 2 feet bgs (1.5 feet in TB-107), was collected with a 3-inch outside diameter (OD), 2-foot-long split-spoon sampler driven by a 140-pound hammer dropped 30 inches, following American Society for Testing and Materials (ASTM) Standard D-1586. The second and third samples, between 2 to 4 and 4 to 6 feet bgs (1.5 to 3.5 and 3.5 to 5.5 feet bgs in TB-107), respectively, were collected with a 2-inch OD, 2-foot-long split-spoon sampler driven in the open borehole created by the 3-inch split-spoon sampler.

Three analytical samples, one from each split-spoon, were collected from each boring except TB-105 and TB-107 where there was no recovery from the 4 to 6 feet bgs split-spoon. The split-spoon samples were primarily black carbon with some gravel and wood. Native soils and groundwater were not encountered in

any of the borings. Of the samples collected from each boring only one was submitted for laboratory analysis. The sample selected to be sent to the laboratory was chosen based on visual observations and photoionization detector (PID) meter readings. The depth of the sample submitted for laboratory analysis and a brief description of the material sampled are summarized in Table 2-1. The analytical samples not sent for laboratory analysis were disposed of in a 55-gallon container. The test borings were backfilled with bentonite.

Samples were collected and documented following procedures set forth in the Program QAPP. Each borehole and description of each split-spoon sample were recorded on a Soil Boring Log (see Volume II). Samples were screened for the presence of volatile organic compounds (VOCs) in the field with a Photovac TIP PID meter. Readings were at, or below, background levels. Screening results were recorded on the Soil Boring Logs.

Subsurface soil samples TB-104 through TB-108 were sent to NYTEST Environmental, Inc. (NYTEST) to be analyzed for Target Compound List (TCL) VOCs, semivolatile organic compounds (SVOCs), pesticides, polychlorinated biphenyls (PCBs), and inorganics, as well as the characteristics of hazardous waste including Extraction Procedure (EP) Toxicity (metals only), reactivity, corrosivity, and ignitability. Sample TB-103 was analyzed for PCBs only. Analytical results are presented and discussed in Subsection 3.4.1.

2.4.2 Groundwater Sampling

Two groundwater monitoring wells, designated MW-101 and MW-102, were installed in TB-101 and TB-102, respectively (see Figure 1-2). Well MW-101 was

Table 2-1
Subsurface Soil Sample Description

Great Lakes Carbon Site
City of Niagara Falls, New York

Sample Location	Method of Exploration	Bottom of Boring	Depth of Sample (feet bgs)	Description
TB-101	Split-spoon	14	--	no analytical samples collected
TB-102	Split-spoon	14	--	no analytical samples collected
TB-103	Hand Auger	2	2	brownish/orange clay and sand with some black stains
TB-104	Split-spoon	6	4	black carbon
TB-105	Split-spoon	6	2	black gravel with carbon material
TB-106	Split-spoon	6	6	black carbon with a little gravel, trace of wood
TB-107	Split-spoon	5.5	2	black carbon, fine silt
TB-108	Hand Auger	4	4	clay with fine sand

NOTES:

bgs = below ground surface

located on the southern side of the 55-gallon container storage area and MW-102 was located on the southern side (i.e., downgradient) of the landfill.

Both borings were advanced to a depth of 15 feet bgs using 4.25-inch inside diameter (ID) hollow-stem augers. The boring was sampled at the surface and at 5-foot intervals using a standard 2-inch OD, 2-foot-long split-spoon sampler driven by a 140-pound hammer dropped 30 inches, following ASTM Standard D-1586. A PID meter was used to screen the sample soil for the presence of VOCs as each split-spoon sampler was opened. Readings were at, or below, background levels. Reference soil samples were collected from each split-spoon for visual evaluation of physical characteristics only. Reference samples from each split-spoon were placed in 8-ounce soil jars. Using a PID, reference jar samples were screened for the presence of VOCs in the soil jar headspace at the end of each day of drilling. The sample descriptions, soil VOC headspace readings, split-spoon sampler blow counts, and drilling observations were recorded on Soil Boring Logs included in Volume II. Drill cuttings were disposed of on top of the landfill.

Groundwater was encountered at 6 feet bgs in both borings. The monitoring wells were completed using 2-inch ID, threaded flush-joint, Schedule 40 polyvinyl chloride, with a 10-foot length of 0.010-inch machine slotted well screen. The bottom of the well screen was placed approximately 14 feet bgs to allow 8 feet of screen in the water table and 2 feet above. A silica sand filter pack was installed extending from the bottom of the boring to 2 feet above the top of the well screen. The sand pack was overlain by a 2-foot bentonite seal. The bentonite was saturated with water and allowed to swell before backfilling the remainder of the boring with a bentonite-cement grout to the ground surface. Each well was

completed with a flush-mount protective casing. The monitoring well installation for each well is illustrated on the Well Installation Diagrams included in Volume II.

The wells were developed by Parratt-Wolff under the supervision of ABB-ES. The recharge on MW-101 was adequate to allow development by pumping. The recharge of MW-102 was too slow to pump; therefore, this well was developed by bailing. Development water was allowed to flow onto to the ground at each well location. The pH, specific conductivity, temperature, and turbidity of development water was measured periodically during the development of each well. MW-101 was developed until groundwater was consistently below 50 nephelometric turbidity units (NTUs). MW-102 remained silty after 75 gallons of water had been purged for more than 5.5 hours. The lowest turbidity reading recorded for MW-102 was 161 NTUs. Development was ceased on this well with NYSDEC approval.

On November 16, 1992, ABB-ES personnel returned to the site to collect groundwater samples from the two wells. Before purging and sampling each well, the groundwater level was measured. Three well volumes of water were purged prior to sampling. Field measurements of temperature, pH, specific conductivity, and turbidity were measured for each well volume of purged water. Field measurements were recorded on Groundwater Field Sample Data Records (see Volume II).

Groundwater samples were collected with decontaminated Teflon bailers following the procedures described in the Program QAPP. Groundwater samples

were sent to NYTEST to be analyzed for TCL VOCs, SVOCs, pesticides, PCBs, and inorganics. Analytical results are presented and discussed in Subsection 3.4.2.

2.4.3 Surface Water and Sediment Sampling

ABB-ES personnel collected four sets of collocated surface water and sediment samples and one duplicate set, designated SW/SD-101 through SW/SD-104 and SW/SD-103D, respectively (see Figure 1-2). Samples SW/SD-101, SW/SD-103, and SW/SD-104 were collected from Pikes Creek, a stream flowing north to south across the GLC property abutting the western edge of the landfill (see Figure 1-2). SW/SD-102 was collected from a sump in one of the GLC manufacturing buildings.

SW/SD-101 was collected at a point near where Pikes Creek flows across the northern property line of the GLC facility. These samples were collected to provide background data on the quality of surface water and sediment in the creek. Samples SW/SD-103 and SW/SD-103D were collected from a manhole access to the storm water sewer pipe, just downgradient of where Pikes Creek flows into the sewer. While collecting sample SW/SD-103, it became apparent that it was collected at a point where storm water sewer lines for the GLC facility converge. Because data from sample SW/SD-103 might reflect sources of contamination from other areas of the GLC facility, ABB-ES personnel recommended collecting an additional collocated sample (i.e., SW/SD-104) from a point in Pikes Creek immediately adjacent to the landfill. Sample SW/SD-104 was added based on this field decision, with NYSDEC's approval, and was collected upgradient from all pipes that discharge into Pikes Creek.

Sample SW/SD-102 was collected from a sump in one of the GLC manufacturing buildings to evaluate what contaminants, if any, are contributed to Pikes Creek through the sewer system from the GLC facility, rather than from the landfill.

All samples were collected and documented in accordance with procedures described in the Program QAPP. Samples were screened in the field with a PID meter for the presence of VOCs. Readings were at, or below, background levels. Surface water was measured in the field, using a Yellow Springs Instrument Model 3500 meter, for temperature, pH, and specific conductivity at the time of sampling. Sampling personnel recorded screening results, field measurements, and sample descriptions, on Surface Water/Sediment Field Sample Data Records (see Volume II).

Surface water samples SW-101 through SW-104 were sent to NYTEST for laboratory analyses of TCL VOCs, SVOCs, pesticides, PCBs, and inorganics. Sediment samples SD-101, SD-103, and SD-104 were sent to NYTEST for the same analyses. Sample SD-102 was only analyzed for characteristics of hazardous waste including EP Toxicity (metals only), ignitability, reactivity, and corrosivity. Analytical results are presented and discussed in Subsection 3.4.3.

2.5 Elevation Survey and Base Map Preparation

An elevation survey of the site was performed by Om P. Popli Associates, Inc. (Popli) after completion of ABB-ES' Task 3 field investigation. The site map of the eastern half of the GLC facility was prepared indicating the location of adjacent properties.

Vertical elevation accuracy was to 0.01 foot and horizontal accuracy was to 0.1 foot. Horizontal positions were based on a scaled coordinate system from the U.S. Geologic Survey (USGS) Tonawanda West Quadrangle because of the lack of a New York State Plane Coordinate System benchmark within one mile of the site. Vertical elevations were tied to mean sea level as established by the 1929 General Adjustment.

Surveyed items located by Popli included the following:

- GLC guardhouse, office building, and plant buildings 101 and 103
- the boundary of the landfill and general areas of debris
- fence line along the north and east property boundaries
- Pikes Creek
- two monitoring wells
- six test boring locations
- three collocated surface water and sediment sample locations

Collocated samples SW/SD-102 were not included in the survey. The survey map and accompanying Survey Control Report are included in Volume II.

3.0 SITE ASSESSMENT

3.1 SITE HISTORY

The GLC Corporation has owned and operated the GLC plant and landfill site since 1939. The plant manufactures carbon-based products such as carbon cathodes, graphite electrodes, granular carbon, and carbon graphite shapes for use as metal alloys.

Industrial wastes generated from the plant were disposed in the 7-acre landfill between 1939 and 1966. Approximately 79,000 cubic yards of material were placed in the landfill including coal dust, wood, refractory sand, carbon graphite, concrete, electrodes, and solid pitch mold stock wastes (NUS, 1985). The landfill is not capped, and the surface has been graded and compacted. The southern slope of the landfill has been graded and is covered with grass.

Capacitors containing PCB oils were stored on the surface of the landfill; however, these capacitors have been removed from the landfill site (E.C. Jordan Co., 1991). The PCB oils were reportedly drained from the capacitors, drummed, and transported by SCA Chemicals to the Chem-trol Site in Lewiston, New York (E-S, 1989; Rosene, 1978). From 1966 to the present, wastes have either been recycled by GLC or transported off-site to the Modern Landfill in Lewiston, New York. Cracked carbon shapes, carbon dusts, and carbon sweepings are recycled by GLC, and baghouse dusts, crushed stone, refractory brick, garbage, and solid pitch are disposed of in the Modern Landfill.

The USGS and NUS Corporation (NUS) have conducted field investigations at the site. In 1982, the USGS collected soil and surface water samples, and in 1985, NUS collected soil, surface water, and sediment samples. The results of these sampling activities are discussed Subsection 3.3.

3.2 SITE DESCRIPTION

The GLC facility consists of a carbon/graphite manufacturing plant located on a 36-acre parcel of property at 6200 Niagara Falls Boulevard, Niagara Falls, New York (see Figure 1-2). The site under investigation is a 7-acre inactive landfill, located toward the northeast corner of the property. The GLC facility is located within a commercial and industrialized area of the City of Niagara Falls. The facility is bordered on the south by Niagara Falls Boulevard and other industrial and commercial properties. Industrial/commercial properties also abut the western and eastern borders of the GLC property. Property to the north includes a Niagara Mohawk Power Corporation right-of-way and the Niagara Electro-Chemical Company (NECCO) Park Landfill, a New York State Inactive Hazardous Waste Site (Site No. 932047).

Most of the GLC production facilities and buildings are located on the western portion of the GLC property. The 7-acre inactive landfill, located toward the northeast corner of the property, is 5 to 7 feet above the natural surface of the site. The landfill is not capped and there is no leachate collection system. The southern slope of the landfill is vegetated with grass. The top of the landfill is used for storage of cracked carbon/graphite forms.

Surface Water Hydrology. A small creek, referred to as Pikes Creek, flows from north to south across the GLC property and abuts the western edge of the landfill area. Pikes Creek enters the 61st Street sewer just north of the GLC parking lot. Most of the GLC facility is paved, except for the landfill. Surface water runoff tends to be directed into storm water drains that converge and discharge into city storm water sewers downstream from where Pikes Creek enters the 61st Street sewer. The 61st Street sewer runs north to south and ultimately discharges to the Niagara River.

Pikes Creek receives runoff from the GLC landfill and from the NECCO Park landfill located north of the GLC property. The creek also receives cooling water, boiler blowdown water, and sump water from the manufacturing process. These discharges are regulated through a NYSDEC SPDES Permit, Number NY0000906 (E.C. Jordan Co., 1991). For purposes of the SPDES Permit, Pikes Creek and the 61st Street sewer are classified as a Class D surface water body (Hinton, 1992)

Groundwater Hydrogeology. The following paragraphs describe what is known about the geologic and hydrologic setting of the GLC Site. The landfill contains carbon particles, refractory sand, and construction debris to an approximate depth of 5 to 7 feet. The soils on the GLC Site consist of Canadaigua silt loam (E.C. Jordan Co., 1991). The soil profile, based on borings drilled by the USGS in 1982, is as follows:

- 0 to 4 feet: topsoil and carbon dust
- 4 to 6.5 feet: clay
- 6.5 to 11.5 feet: clay

Bedrock beneath the site is expected to be Lockport Dolomite and is estimated to be 25 to 40 feet below the surface (E-S, 1989). The bedrock is expected to be overlain with glacial till and clay materials. Permeability of the soils is expected to be between 10^{-5} to 10^{-7} centimeters per second (E-S, 1989). Based on the PSA Task 3 borings drilled to install monitoring wells, groundwater was encountered 6 feet bgs. Groundwater flow direction was not established during the Task 3 investigation. However, groundwater flow is expected to be north to south because of mounding influence from the NECCO Park landfill.

The nearest drinking water well is more than 3 miles from the site. Drinking water for the properties surrounding the GLC Site is provided by the City of Niagara Falls public water supply. The intakes for the public water system are on the Niagara River, approximately 2 miles downstream relative to GLC. Olin Chemical Corporation, located on Buffalo Avenue and southwest of the GLC Site, uses groundwater for non-contact cooling water (E-S, 1989; Hopkins, 1986).

3.3 PREVIOUS INVESTIGATIONS

In 1982, the USGS collected three soil samples from around the landfill and one surface water sample from Pikes Creek (see Figure 1-2). These samples were analyzed for the four priority pollutants: naphthalene, anthracene, fluoranthene, and pyrene, and several non-priority pollutants. Naphthalene was the only priority pollutant detected above analytical detection levels at a concentration of 252 micrograms per kilogram (μg/kg) (USEPA, 1985). Non-priority pollutants such as p-1,1-dimethylethyl-phenol and benzoic acid were also detected at 5 and 21 μg/kg, respectively. Contaminant concentrations in the surface water were not detected

above U.S. Environmental Protection Agency criterion for maximum permissible concentrations in drinking water (USEPA, 1985).

In 1985, NUS collected four soil samples from around the landfill, and two sediment and four surface water samples from Pikes Creek (see Figure 1-2). All samples were analyzed for priority pollutants. Compounds detected in surface water samples NY99-SW1 and NY99-SW2 included phenols at 9 micrograms per liter (μg/L) and 61 μg/L, barium at 1,800 and 298 μg/L, and chromium at 53 and 33 μg/L, respectively (NUS, 1985). In the case of barium and chromium, the concentration of the upgradient sample SW1 was higher than downstream sample SW2. Table 3-1 summarizes surface water sample analysis results. Surface water samples collected from the furnace sumps (NY99-SW3 and NY99-SW4) did not detect organic compounds at levels above the analytical laboratory quantitation limits (NUS, 1985).

Analysis of sediment samples detected a number of VOCs, SVOCs, and inorganics, as summarized in Table 3-1. Those compounds detected at higher concentrations in the downstream sample, as compared to the upstream sample, included acetone, iron, magnesium, and eight SVOCs. Compounds detected at higher concentrations in the upstream sample, as compared to the downstream sample, included barium, chromium, lead, manganese, mercury, and zinc.

Surface soil samples were collected from four locations at the GLC Site from 1 to 8 inches bgs. Analysis of these samples detected two VOCs and 13 SVOCs with concentrations ranging between 1,600 and 180,000 μg/kg. Inorganic elements including lead, magnesium, manganese, mercury, nickel, and zinc were also

Table 3–1
Summary of Sampling Results of NUS Investigation

Great Lakes Carbon
City of Niagara Falls, New York

Compound	SURFACE WATER SAMPLES			
	SW–1[1] µg/L	SW–2[2] µg/L	SW–3 µg/L	SW–4 µg/L
Phenol	9	61	–	–
Barium	1,800	298	–	–
Calcium	390,000	223,000	62,200	37,700
Chromium	53	33	–	–
Iron	1,040	522	103	273
Magnesium	12,200	10,900	16,700	8,630
Manganese	128	51	105	26
Mercury	1.4	0.33	–	–
Zinc	30	23	26	201

Compound	SEDIMENT SAMPLES	
	SED–1[1] µg/kg	SED–2[2] µg/kg
Acetone	130[+]	210[+]
Carbon disulfide	23	8.3
Phenanthrene	–[3]	39,000
Flouranthene	–[3]	60,000
Pyrene	–[3]	51,000
benzo(a) anthracene	–[3]	33,000
chrysene	–[3]	38,000
benzo(b) fluoranthene	–[3]	38,000
benzo(k) fluoranthene	–[3]	29,000
benzo(a) pyrene	–[3]	35,000
	mg/kg	mg/kg
Barium	6,160	–
Chromium	161	47
Iron	11,700	13,500
Lead	57	35
Magnesium	8,150	10,600
Manganese	473	447
Mercury	7.2	0.41
Zinc	201	171

Table 3–1
Summary of Sampling Results of NUS Investigation

Great Lakes Carbon
City of Niagara Falls, New York

Compound	SURFACE SOIL SAMPLES			
	S1 µg/kg	S2 µg/kg	S3 µg/kg	S4 µg/kg
Methylene Chloride	–*	428	488	438
1,1,1–Trichloroethane	–	7.9	–	–
Acenaphthene	–	–	1,600	–
Phenanthrene	81,000	100,000	7,300	45,000
Anthracene	27,000	34,400	2,300	–
Fluoranthene	150,000	170,000	18,000	73,000
Pyrene	140,000	140,000	14,000	65,000
Benzo(a)Anthracene	100,000	110,000	11,000	42,000
Chrysene	120,000	140,000	14,000	46,000
Benzo(b)Fluoranthene	110,000	180,000	24,000	44,000
Benzo(k)Fluoranthene	80,000	110,000	20,000	38,000
Benzo(a) Pyrene	95,000	140,000	15,000	47,000
Indeno(1,2,3–cd)pyrene	41,000	44,000	8,700	–
Benzo(g,h,i)Pyrene	43,000	45,000	9,000	25,000
Delta – BHC	5,200	–	–	–
	mg/kg	mg/kg	mg/kg	mg/kg
Arsenic	6.1	–	–	6.6
Chromium	51	87	19	51
Iron	11,800	11,600	6,560	20,400
Lead	83	108	22	102
Magnesium	34,400	10,600	–	–
Manganese	3,130	1,730	227	370
Mercury	2	0.54	–	0.57
Nickel	32	57	30	30
Zinc	856	286	86	219

SOURCE:
NUS Corporation, Presentation of Analytical Data from Great Lakes Carbon Corporation, City of Niagara Falls, New York, 9/27/85.

NOTES:
[1] SW–1 and SD–1 are upstream samples
[2] SW–2 and SD–2 are downstream samples
[3] Compound present below specified detection limit.
* Analysis did not pass QA/QC requirements.
\+ Constituent detected in the laboratory blank as well as the sample.
µg/kg = micrograms per kilogram
mg/kg = milligrams per kilogram
µg/L = micrograms per liter

detected at elevated concentrations. These data are also summarized in Table 3-1.

Because these sampling and analyses did not include hazardous waste characteristic testing these previous data are insufficient to establish whether hazardous waste had been disposed in the landfill.

A summary of sampling results for SPDES-regulated discharges into Pikes Creek revealed that no contaminants were detected above quantifiable limits. These samples were analyzed for volatile priority pollutants. SPDES-regulated discharges include waters from storm drains, boiler blowdown, non-contact cooling water, and sump waters from the main plant (E.C. Jordan Co., 1991).

3.4 CONTAMINATION ASSESSMENT

The following subsections present the results of the sampling and analysis conducted at the GLC Site during the PSA Task 3 investigation. Evaluation of the data is limited to the project purposes of (1) establishing whether hazardous waste was disposed in the landfill, and (2) evaluating whether those wastes pose any potential significant threat to public health or the environment. Because no listed wastes were disposed of at the site, hazardous waste is established based on the results of characteristics testing of EP Toxicity (metals only), ignitability, reactivity, and corrosivity. Significant threat is evaluated by comparing groundwater and surface water analytical results to New York State Surface Water and Groundwater Quality Standards.

3.4.1 Subsurface Soil Sample Analytical Results

Six subsurface soil samples, TB-103 through TB-108, were collected at the GLC Site. Sample TB-103 was analyzed for PCBs only. Samples TB-104 through TB-108 were analyzed for TCL VOCs, SVOCs, pesticides, PCBs, and inorganics, as well as hazardous waste characteristics including EP Toxicity (metals only), reactivity, ignitability, and corrosivity. Because no standards are promulgated for soil, the only evaluation of TCL data for subsurface soil is comparison to the background sample TB-108 and comparison of inorganic data with background soil concentration ranges for inorganics in soils of New York State and the eastern United States. Results of these analyses are summarized in Table 3-2.

Analysis of sample TB-103, collected from the transformer storage area, did not detect any PCBs above the Contract Required Quantitation Limit (CRQL).

Samples TB-104 through TB-107 were all collected from the landfill area. Leachable levels of barium were detected in the extract of these samples during EP Toxicity analyses. Leachable barium was detected at concentrations ranging between 308 and 756 μg/L. These concentrations are all below the regulatory limit of 100 milligrams per liter. All samples passed the characteristics tests for ignitability, reactivity, and corrosivity. Analysis of samples TB-104 through TB-108 for VOCs did not detect any compounds above the CRQL. Twenty-three SVOCs were detected in the four samples. SVOC concentrations were compared to those detected in background sample TB-108. In almost all instances, SVOC concentrations were greater than background. Detection of SVOCs, which are typical of combustion products, in the landfill samples is expected because of the production of carbon and graphite products at GLC using furnaces and ovens.

Table 3–2
Subsurface Soil Sampling Data

Great Lakes Carbon Site
City of Niagara Falls, New York

Compound	CRQL/ CRDL	TB–103	TB–104	TB–105	TB–106	TB–107	TB–108
TCL Volatile Organic Compounds (µg/kg)							
None were detected	10	–	–	–	–	–	–
TCL Semivolatile Organic Compounds (µg/kg)							
2,4–Dimethylphenol	330	NA	210 JJ	480 JJ	260 JJ	51 JJ	–
2–Methylnaphthalene	330	NA	6,200	14,000	7,100	3,700	–
2–Methylphenol	330	NA	130 JJ	290 JJ	–	–	–
4–Methylphenol	330	NA	410 JJ	880 JJ	500 JJ	130 JJ	–
Acenaphthene	330	NA	17,000 DJJ	61,000 D	47,000	27,000 DJ	210 JJ
Acenaphthylene	330	NA	9,900	–	620 JJ	210 JJ	24 JJ
Anthracene	330	NA	35,000 DJ	99,000 D	68,000 D	56,000 DJ	220 JJ
Benzo(a)Anthracene	330	NA	54,000 DJ	170,000 D	140,000 DEJ	140,000 DJ	720
Benzo(a)Pyrene	330	NA	41,000 DJ	140,000 D	120,000 DEJ	120,000 DJ	660
Benzo(b)Fluoranthene	330	NA	31,000 DJ	100,000 D	80,000 D	92,000 DJ	580
Benzo(g,h,i)perylene	330	NA	15,000 DJJ	63,000 D	62,000 D	58,000 DJ	280 J
Benzo(k)Fluoranthene	330	NA	32,000 DJ	100,000 D	89,000 D	88,000 DJ	490
Carbazole	330	NA	14,000 J	31,000 DJJ	25,000 J	17,000 J	99 JJ
Chrysene	330	NA	67,000 DJ	190,000 D	180,000 DEJ	170,000 DJ	1,100
Di–n–octylphthalate	330	NA	–	–	120 JJ	–	–
Dibenz(a,h)Anthracene	330	NA	7,300	22,000 DJJ	20,000	19,000 DJJ	140 J
Dibenzofuran	330	NA	13,000	31,000 DJJ	20,000	12,000	57 JJ
Fluoranthene	330	NA	130,000 DJ	410,000 DEJ	240,000 DEJ	340,000 DEJ	1,800
Fluorene	330	NA	22,000 DJ	47,000 D	29,000	26,000 DJ	99 J
Indeno(1,2,3–c,d)Pyrene	330	NA	27,000 DJ	88,000 D	80,000 D	80,000 DJ	550
Naphthalene	330	NA	24,000 DJ	53,000 D	29,000	17,000	69 JJ
Phenanthrene	330	NA	120,000 DJ	350,000 DEJ	240,000 DEJ	250,000 DEJ	1,100 J
Pyrene	330	NA	110,000 DJ	330,000 DEJ	210,000 DEJ	290,000 DEJ	1,800

Table 3–2
Subsurface Soil Sampling Data

Great Lakes Carbon Site
City of Niagara Falls, New York

Compound	CRQL/ CRDL	TB–103	TB–104	TB–105	TB–106	TB–107	TB–108
TCL Pesticides and Polychlorinated Biphenyl Compounds (µg/kg)							
alpha–BHC	1.7	–	–	12 J	–	–	–
4,4'–DDD	3.3	–	–	7.6 JJ	–	–	–
Aldrin	1.7	–	5.3 JJ	–	–	–	–
Endosulfan II	3.3	–	–	–	4.2 JJ	–	–
Endrin	3.3	–	–	–	–	21 J	–
Endrin Ketone	3.3	–	67 J	46 J	63 J	29 J	–
Heptachlor	1.7	–	4.9 JJ	–	–	3.1 JJ	–
Methoxychlor	1.7	–	–	11 JJ	–	–	–
Aroclor–1248	33	–	–	1,700	–	–	–
Aroclor–1254	33	–	–	–	–	–	340
TCL Inorganic Compounds (mg/kg)							
Aluminum	40	NA	2,110	1,250	844	5,230	7,680
Antimony	12	NA	–	14.8 J	14.5 J	–	10.1 []J
Arsenic	2	NA	3.9	1.8 []	2.2	4.6	4.2
Barium	40	NA	25.0 []J	27.2 []J	19.2 []	92.9 J	47.6 J
Beryllium	1	NA	0.56 []	–	–	1.9	0.85 []
Cadmium	1	NA	–	0.71 []	–	–	–
Calcium	1,000	NA	12,200	56,700	44,700	11,900	29,800
Chromium	2	NA	89.3 J	31.2 J	40.3 J	77.8 J	24.6 J
Cobalt	10	NA	5.3 []	2.9 []	5.2 []	6.7 []	10.0 []
Copper	5	NA	34.1 J	11.6 J	20.2 J	70.6 J	15.4 J
Iron	20	NA	5,930	5,750	5,420	11,300	15,300
Lead	0.6	NA	27.7	32.1	47.3	24.3	22.0
Magnesium	1,000	NA	5,000	34,300	27,300	4,370	9,220
Manganese	3	NA	129 J	328 J	165 J	234 J	337 J
Mercury	0.04	NA	1.5 J	–	–	1.7 J	0.33 J
Nickel	8	NA	20.8	9.2 []	12.7	31.0	15.0
Potassium	1,000	NA	273 []	260 []	328 []	415 []	862 []

Table 3–2
Subsurface Soil Sampling Data

Great Lakes Carbon Site
City of Niagara Falls, New York

Compound	CRQL/ CRDL	TB–103	TB–104	TB–105	TB–106	TB–107	TB–108
TCL Inorganic Compounds (mg/kg) (continued)							
Sodium	1,000	NA	72.9 []	129 []	103 []	99.1 []	–
Vanadium	10	NA	16.3	12.1	15.9	19.6	20.0
Zinc	4	NA	55.4 J	232 J	132 J	74.7 J	62.0 J
Hazardous Waste Characteristics							
Ignitability (°F): <140°F[1]		NA	–	–	–	–	–
Corrosivity (pH): ≤2 or≥12[1]		NA	6.14	6.75	6.84	6.33	7.58
Reactivity – Cyanide (mg/kg)	1.0	NA	–	–	–	–	–
Reactivity – Sulfide (mg/kg)	1.0	NA	–	–	–	–	–
EP Toxicity (µg/L)							
Barium: 100 mg/L[1]	10	NA	365	394	308	427	756

NOTES:
[1] Criteria of hazardous waste characteristics as set forth in 6 NYCRR Part 371, January 31, 1992.
CRQL = Contract Required Quantitation Limit (organics)
CRDL = Contract Required Detection Limit (inorganics)
D = diluted
E = exceeds calibration range
J = estimated
JJ = estimated below sample specific CRQL
mg/kg = milligrams per kilogram
NA = not analyzed
R = rejected
TCL = Target Compound List
µg/kg = micrograms per kilogram
[ ] = less than sample specific CRDL
– = not detected

Nine pesticide and PCB compounds were detected in the landfill samples at concentrations ranging from below the CRQL to 1,700 μg/kg. None of the pesticide and PCB compounds detected in the landfill sample were detected in the background sample.

Inorganic element concentrations of the landfill samples were compared to background sample TB-108 (see Table 3-2) and to ranges of background concentrations of inorganics in soils of New York State and the eastern United States (Table 3-3). Compounds detected at concentrations greater than TB-108 in more than half of the landfill samples included chromium, lead, sodium, and zinc. These elements were also detected at concentrations greater than soils of New York State because the concentrations in background sample TB-108 were greater than the upper range for soils of New York State.

3.4.2 Groundwater Sample Analytical Results

Two groundwater samples and one duplicate, MW-101, MW-101D, and MW-102, were collected from the monitoring wells and analyzed for TCL VOCs, SVOCs, pesticides, PCBs, and inorganics. Analytical results are summarized in Table 3-4. No organic compounds were detected at concentrations greater than the CRQL. Concentration of inorganics detected in groundwater were compared to New York State Class GA Groundwater Quality Standards set forth under 6 NYCRR Part 703 (NYSDEC, 1991). Class GA groundwaters are defined as suitable as a source of potable drinking water. The only exceedances were for iron, manganese, and sodium.

Table 3–3
Ranges of Background Inorganic Concentrations in Soil

Great Lakes Carbon
City of Niagara Falls, New York

COMPOUND	NEW YORK REGION[1] (mg/kg)	EASTERN UNITED STATES[2] (mg/kg)
Aluminum	1,000 – 25,000	7,000 – > 10,000
Arsenic	3 – 12	<0.1 – 73
Barium	15 – 600	10 – 1,500
Beryllium	0 – 1.75	<1 – 7
Cadmium	0.01 – 2	NA
Calcium	130 – 35,000	100 – 280,000
Chromium	1.5 – 40	1 – 1,000
Cobalt	2.5 – 60	<0.3 – 70
Copper	1 – 15	<1 – 700
Iron	17,500 – 25,000	10 – >100,000
Lead	10 – 37	<10 – 300
Magnesium	1,700 – 6,000	50 – 50,000
Manganese	50 – 5,000	<2 – 7,000
Mercury	0.042 – 0.066	0.01 – 3.4
Nickel	0.5 – 25	<5 – 700
Potassium	8,500 – 43,000	5 – 3,700
Selenium	<0.1 – 0.125	<0.1 – 3.9
Silver	NA	NA
Sodium	6,000 – 8,000	< 50 – 50,000
Vanadium	25 – 60	<7 – 300
Zinc	37 – 60	<20 – 2,900

NOTES:

[1] Concentrations obtained from "Background Concentrations of 20 Elements in Soils with Special Regard for New York State" (no date). Paper prepared by E. Carol McGovern, NYSDEC Wildlife Resources Center.

[2] Shacklette, M.T. and J.G. Boerngen, 1984. "Element Concentrations in Soils and Other Surficial Materials of the Conterminous United States"; USGS Professional Paper 1270.

mg/kg = milligrams per kilogram
NA = Not Available

Table 3–4
Groundwater Sampling Data

Great Lakes Carbon Site
City of Niagara Falls, New York

Compound	NYSDEC Class GA[1]	CRQL/ CRDL	MW–101	MW–101D	MW–102
TCL Volatile Organic Compounds (µg/L)					
None were detected			–	–	–
TCL Semivolatile Organic Compounds (µg/L)					
None were detected			–	–	–
TCL Pesticides and Polychlorinated Biphenyl Compounds (µg/L)					
None were detected			–	–	–
TCL Inorganic Compounds (µg/L)					
Aluminum	–	200	107 []	75.5 []	–
Antimony	3 G	60	60.2 J	45.4 []J	49.7 []J
Arsenic	25	10	–	5.3 []	–
Barium	1,000	200	34.2 []	36.5 []	54.2 []
Calcium	–	5,000	190,000	197,000	215,000
Iron	300 [2]	100	2,310	2,370	–
Magnesium	35,000 G	5,000	57,900	60,400	50,800
Manganese	300 [2]	15	6540	6800	11 []
Potassium	–	5,000	–	–	1,050 []
Sodium	20,000	5,000	32,500	33,600	12,600
Vanadium	–	50	–	–	5.5 []

NOTES:

[1] New York State Groundwater Quality Standards – 6 NYCRR Part 703 (September 1, 1991). Source: Division of Water Technical and Operational Guidance Series (Ambient Water Quality Standars and Guidance Values, November 15, 1992).

[2] Standard for iron and manganese is 500µg/L.

CRQL = Contract Required Quantitation Limit (organics)
CRDL = Contract Required Detection Limit (inorganics)
D = diluted
J = estimated
JJ = estimated below sample specific CRQL
NA = not analyzed
R = rejected
TCL = Target Compound List
µg/L = micrograms per liter
[ ] = less than sample specific CRDL
– = not detected

3.4.3 Surface Water Sediment Sample Analytical Results

Four sets of collocated surface water and sediment samples and one duplicate set, SW/SD-101 through SW/SD-104 and SW/SD-103D, respectively, were collected from the GLC facility (see Figure 1-2). Three sets of samples were collected from Pikes Creek. Sample SW/SD-101 is an upgradient sample representing the quality of surface water and sediment where the creek crosses the northern property boundary of the GLC facility. Sample SW/SD-104 was collected immediately adjacent to the GLC landfill, and SW/SD-103 was collected from a point downgradient from where Pikes Creek enters the 61st Street storm water sewer. Sample SW/SD-102 was collected from a sump in one of the manufacturing buildings.

Surface Water. All surface water samples were analyzed for TCL VOCs, SVOCs, pesticides, PCBs, and inorganics. Analytical results are presented in Table 3-5. NYSDEC Class D Surface Water Standards are also included in Table 3-5 for comparison.

Six VOCs and 14 SVOCs were detected in surface water samples, most at concentrations below the CRQL. The only compounds detected above the CRQL were acetone in SW-101 at 40 J μg/L, chloroform in SW-102 at 10 μg/L, and phenol in SW-101 at 11 μg/L. Because SW-101 is an upgradient sample, those compounds detected in this sample are not considered to reflect any impact from the landfill. No pesticide or PCB compounds were detected in any surface water samples. Inorganic elements detected in the surface water samples are reported in Table 3-5.

Table 3–5
Surface Water Sampling Data

Great Lakes Carbon Site
City of Niagara Falls, New York

Compound	NYSDEC CLASS D[1]	CRQL/ CRDL	SW–101	SW–102	SW–103	SW–103D	SW–104
TCL Volatile Organic Compounds (µg/L)							
1,1,2,2–Tetrachloroethane	–	10	–	–	–	–	3 JJ
Acetone	–	10	40 J	–	–	–	–
Benzene	6 G	10	–	–	–	–	–
Bromodichloromethane	–	10	–	4 JJ	2 JJ	2 JJ	–
Chloroform	–	10	–	10	4 JJ	4 JJ	–
Toluene	–	10	–	–	–	1 JJ	–
TCL Semivolatile Organic Compounds (µg/L)							
2–Methylphenol	1[2]	330	2 JJ	–	–	1 JJ	–
4–Methylphenol	1[2]	330	2 JJ	–	1 JJ	1 JJ	–
Acenaphthene	–	330	–	–	1 JJ	1 JJ	–
Benzo(a)Anthracene	–	330	–	–	–	–	1 JJ
Benzo(a)Pyrene	0.0012 G	330	1 JJ	–	–	–	–
Benzo(b)Fluoranthene	–	330	–	–	–	–	1 JJ
Benzo(k)Fluoranthene	–	330	1 JJ	–	–	–	1 JJ
Carbazole	–	330	–	–	1 JJ	1 JJ	–
Chrysene	–	330	1 JJ	–	–	1 JJ	2 JJ
Diethylphthalate	–	330	–	–	–	2	–
Naphthalene	–	330	–	–	1 JJ	2 JJ	–
Phenanthrene	–	330	1 JJ	1 JJ	3 JJ	3 JJ	1 JJ
Phenol	1[2]	330	11	–	5 JJ	6 JJ	–
Pyrene	–	330	–	–	1 JJ	1 JJ	1 JJ
TCL Pesticides and Polychlorinated Biphenyl Compounds (µg/L)							
None were detected				–	–	–	–
TCL Inorganic Compounds (µg/L)							
Aluminum	–	200	2210	172 []	350	280	289
Antimony	–	60	64.3 J	–	–	–	60.4 J
Barium	–	200	440	17.6 []	66.5 []	56.3 []	293
Calcium	a	5000	198000	32000	64100	55400	188000
Chromium	b	10	16.6 J	–	–	–	10.2 J

Table 3–5
Surface Water Sampling Data

Great Lakes Carbon Site
City of Niagara Falls, New York

Compound	NYSDEC CLASS D[1]	CRQL/ CRDL	SW–101	SW–102	SW–103	SW–103D	SW–104
TCL Inorganic Compounds (µg/L) (continued)							
Copper	c	25	5.2 []	14.7 []	48.7 J	26.6	–
Iron	300	100	4280	87.8 []	597 J	336 J	756 J
Lead	d	3	9.6	–	6.2 J	3.7 J	3.3
Magnesium	–	5000	35100	8160	15500 J	13300 J	43600
Manganese	–	15	271	–	86	102	385
Potassium	–	5000	7850 J	–	2670 []	2140 []	9550 J
Selenium	–	5	R	R	–	–	–
Sodium	–	5000	68300	8760	23200 J	19300 J	72000
Thallium	20 [3]	10	–	–	R	R	R
Vanadium	190 [3]	50	5.2 []	–	–	–	6.4 []
Zinc	e	20	43.9	–	36.7 J	16.2 []J	14.7 []

NOTES:

[1] New York State Surface Water Quality Standards – 6 NYCRR 703 (September 1, 1991). Source: Division of Water and Technical and Operational Guidance Series (1.1.1) Ambient Water Quality Standards and Guidance Values (November 15, 1992).

[2] NYS Surface Water Quality Standard of 1.0 µg/L is for total phenols.

[3] NYS Surface Water Quality Standard for thallium and vanadium apply to acid–soluble form.

a = exp(1.128[ln (ppm hardness)] + 3.828), applies to acid–soluble form.
b = exp(0.819[ln (ppm hardness)] + 3.688), applies to acid–soluble form.
c = exp(0.9422[ln (ppm hardness)] – 1.464), applies to acid–soluble form.
d = exp(1.266[ln (ppm hardness)] – 1.416), applies to acid–soluble form.
e = exp(0.83[ln (ppm hardness)] + 1.95), applies to acid–soluble form.

CRQL = Contract Required Quantitation Limit (organics)
CRDL = Contract Required Detection Limit (inorganics)
D = diluted
G = guidance value
J = estimated
JJ = estimated below sample specific CRQL
NA = not analyzed
R = rejected
TCL = Target Compound List
µg/L = micrograms per liter
[ ] = less than sample specific CRDL
– = not detected

All surface water analytical results were compared to New York State Class D Surface Water Quality Standards. Under the Class D Surface Water Quality Standards, there is a standard for total phenols of 1 μg/L. This standard was exceeded with the detection of 2-methylphenol, 4-methylphenol, and phenols in samples SW-101 and SW-103. However, because the standard was exceeded in upgradient sample SW-101 where Pikes Creek enters the GLC facility, this contravention of standards is not considered related to the landfill.

Class D standards were also exceeded for two inorganic elements, copper and iron. The Class D standard of 300 μg/L for iron was exceeded in samples SW-101 (4,280 μg/L), SW-103 (597 J μg/L), SW-103 D (336 J μg/L), and SW-104 (756 J μg/L). As with phenols, the highest concentration of iron was detected in the upgradient sample SW-101, with concentrations actually decreasing at downgradient sample locations. These exceedances are not believed related to the GLC landfill. The copper standard is hardness dependant and was calculated for each individual sample location (see Appendix C). The copper standard calculated for SW-103 is 36.4 μg/L. This was exceeded with the detection of copper at 48.7 J μg/L. However, the calculated standard was not exceeded for the duplicate sample SW-103D. Sample SW-103 was collected from a converging point of the GLC storm water sewers. Because this sample point may reflect storm water drainage from various points throughout the manufacturing facility, it can not be established if this contravention of the Class D copper standard relates to the landfill.

Sediment. Sediment samples SD-101, SD-103, and SD-104, collected from Pikes Creek, were analyzed for TCL VOCs, SVOCs, pesticides, PCBs, and inorganics.

The sump sample, SD-102, was only analyzed for characteristics of hazardous waste. Analytical results are summarized in Table 3-6.

Sample SD-102 passed all characteristics tests. A number of TCL VOCs, SVOCs, pesticides, PCBs, and inorganics were detected in SD-103 and SD-103D. The presence of these compounds in this sample was considered to reflect material that has washed into the storm water drain systems of the GLC facility. This includes material originating from the manufacturing buildings, which would reflect the relatively high levels of SVOCs, as well as storm water draining from the roadways and parking lots throughout the GLC facility. Because of the introduction of contaminants from these sources, the analytical results of SD-103 will not be considered in evaluating any potential impacts to Pikes Creek from the landfill.

Three VOCs were detected in upgradient sample SD-101; no VOCs were detected in SD-104, collected adjacent to the landfill. No pesticides or PCBs were detected in either of these samples. Twenty SVOCs were detected in samples SD-101 and SD-104. SVOC concentrations of SD-104 were compared to those detected in SD-101. The only compound detected at a concentration higher than the upgradient sample was benzo(g,h,i)perylene, detected in SD-104 at 1,400 J μg/kg.

Inorganics detected in samples SD-101 and SD-104 are summarized in Table 3-6. In almost all instances concentrations of inorganics detected in SD-104 were higher than those detected in SD-101. Those compounds detected at significantly higher concentrations than the upgradient sample were aluminum, iron, and magnesium.

Table 3–6
Sediment Sampling Data

Great Lakes Carbon Site.
City of Niagara Falls, New York

Compound	CRQL/ CRDL	SD–101	SD–102	SD–103	SD–103D	SD–104
TCL Volatile Organic Compounds (µg/kg)						
1,1–Dichloroethane	10	26	NA	–	–	–
Chloroethane	10	48 J	NA	–	–	–
Ethylbenzene	10	–	NA	8 JJ	9 JJ	–
Toluene	10	–	NA	15	25	–
Total Xylenes	10	–	NA	43	53	–
Vinyl Chloride	10	4 JJ	NA	–	–	–
TCL Semivolatile Organic Compounds (µg/kg)						
1,2,4–Trichlorobenzene	330	–	NA	80 JJ	–	–
2,4–Dimethylphenol	330	–	NA	480 JJ	–	–
2–Methylnaphthalene	330	97 JJ	NA	16,000	35,000 J	33 JJ
4–Methylphenol	330	–	NA	100 JJ	–	–
Acenaphthene	330	1,200	NA	140,000 D	250,000	400 JJ
Acenaphthylene	330	50 JJ	NA	4,000 JJ	5,400 JJ	–
Anthracene	330	1,500	NA	310,000 D	410,000 D	500 JJ
Benzo(a)Anthracene	330	5,600	NA	12,000,001 DEJ	1,100,000 D	1,400 J
Benzo(a)Pyrene	330	3,900	NA	630,000 D	580,000 D	2,100 J
Benzo(b)Fluoranthene	330	4,100	NA	870,000 DEJ	780,000 D	1,700 J
Benzo(g,h,i)perylene	330	700 JJ	NA	300,000 D	310,000	1,400 J
Benzo(k)Fluoranthene	330	3,600	NA	540,000 D	520,000 D	1,400 J
Carbazole	330	620 JJ	NA	81,000 J	180,000 J	170 JJ
Chrysene	330	6,700	NA	2,000,000 DEJ	1,800,000 DEJ	2,500 J
Di–n–octylphthalate	330	10 JJ	NA	–	–	–
Dibenz(a,h)Anthracene	330	500 JJ	NA	130,000 D	110,000	350 JJ
Dibenzofuran	330	400 JJ	NA	40,000	89,000	87 JJ
Fluoranthene	330	13,000 D	NA	1,800,000 DEJ	3,100,000 DEJ	3,400 J
Fluorene	330	810 JJ	NA	77,000	170,000	200 JJ
Indeno(1,2,3–c,d)Pyrene	330	2,900	NA	320,000 D	340,000	1,600 J
N–Nitrosodiphenylamine	330	–	NA	–	4,000 JJ	–
Naphthalene	330	520 JJ	NA	17,000	37,000 J	130 JJ

Table 3–6
Sediment Sampling Data

Great Lakes Carbon Site
City of Niagara Falls, New York

Compound	CRQL/ CRDL	SD–101	SD–102	SD–103	SD–103D	SD–104
TCL Semivolatile Organic Compounds (µg/kg) (continued)						
Phenanthrene	330	6,200	NA	1,200,000 D	2,000,000 DEJ	1,800 J
Pyrene	330	7,800 J	NA	1,400,000 DEJ	2,300,000 DEJ	3,000 J
TCL Pesticides and Polychlorinated Biphenyl Compounds (µg/kg)						
Endrin Ketone	3.3	–	NA	270	410 J	–
Aroclor–1248	33	–	NA	320 JJ	–	–
TCL Inorganic Compounds (mg/kg)						
Aluminum	40	8,420	NA	2,210	1,950	22,900 J
Antimony	12	18.9 []	NA	–	–	24.4 []J
Arsenic	2	2.7 []	NA	2.1 []	2.4 []	–
Barium	40	579	NA	274 J	219 J	228 J
Beryllium	1	0.43 []	NA	–	–	1.3 []J
Cadmium	1	–	NA	0.93 []	–	–
Calcium	1,000	48,900	NA	37,000	35,300	64,600 J
Chromium	2	61.0 J	NA	28.8 J	22.9 J	50.9 J
Cobalt	10	12 []	NA	4.2 []	4.4 []	18.1 []J
Copper	5	23.9	NA	118 J	81.8 J	31.6 J
Cyanide	20	–	NA	–	–	–
Iron	20	16,800	NA	5,400	6,750	36,000 J
Lead	0.6	28.3	NA	30.8	24.4	25.2 J
Magnesium	1,000	8,240	NA	5,400 J	4,510 J	15,900 J
Manganese	3	316	NA	198	205	728 J
Mercury	0.04	0.67	NA	0.23 J	0.29 J	0.32 J
Nickel	8	20.6 J	NA	15.6	10.7	37.3 J
Potassium	1,000	1,190 []	NA	516 []	293 []	4,940 J
Selenium	1	–	NA	R	R	R
Silver	2	–	NA	1.8 []J	–	–
Sodium	1,000	166 []	NA	199 []	184 []	217 []J
Vanadium	10	23.3 J	NA	17.9	12.2 []	50.9 J
Zinc	4	115	NA	80.3	99.5	184 J

Table 3–6
Sediment Sampling Data

Great Lakes Carbon Site
City of Niagara Falls, New York

Compound	CRQL/ CRDL	SD–101	SD–102	SD–103	SD–103D	SD–104
Hazardous Waste Characteristics						
Ignitability (°F): <140°F[1]	–	NA	–	NA	NA	NA
Corrosivity (pH): ≤2 or≥12[1]	–	NA	6.33	NA	NA	NA
Reactivity – Cyanide (mg/kg)	1.0	NA	–	NA	NA	NA
Reactivity – Sulfide (mg/kg)	1.0	NA	–	NA	NA	NA
EP Toxicity (µg/L)						
Barium: 100 mg/L[1]	10	NA	373 J	NA	NA	

NOTES:
[1] Criteria of hazardous waste characteristics as set forth in 6 NYCRR Part 371, January 31, 1992.
CRQL = Contract Required Quantitation Limit (organics)
CRDL = Contract Required Detection Limit (inorganics)
D = diluted
E = exceeds calibration range
J = estimated
JJ = estimated below sample specific CRQL
mg/kg = milligrams per kilogram
NA = not analyzed
R = rejected
TCL = Target Compound List
µg/kg = milligrams per kilogram
[ ] = less than sample specific CRDL
– = not detected

4.0 ASSESSMENT OF DATA ADEQUACY AND RECOMMENDATIONS

The following subsections further evaluate the findings presented in Section 3.0 against the purpose of the Task 3 PSA investigation at the GLC Site to establish whether hazardous waste was disposed in the landfill. Analytical results of the Task 3 sampling program are presented in Section 3.0. Evaluation of data presented in Section 3.0 consisted of comparing hazardous waste characteristics testing results to regulatory limits for hazardous waste characteristics. Subsurface soil results were compared to concentrations of an on-site background sample and ranges for inorganics in soils of New York State and the eastern United States. To evaluate the potential of any significant threat posed by the landfill, downgradient groundwater samples were compared to New York State Class GA Groundwater Quality Standards. Surface water analytical data from samples collected from Pikes Creek were compared to New York State Class D Surface Water Quality Standards.

4.1 HAZARDOUS WASTE DEPOSITION

The results of the PSA Task 1 and Task 3 investigations of the GLC Site do not indicate hazardous waste was disposed in the landfill. As set forth in NYSDEC regulations on the Identification of Listing of Hazardous Waste, 6 NYCRR Part 371, there would need to be documentation of a listed hazardous waste having been disposed in the landfill, or a material (i.e., a subsurface soil sample from the landfill) would have to fail one of the hazardous waste characteristics tests, either EP Toxicity, ignitability, reactivity, or corrosivity (NYSDEC, 1992a).

The Task 1 records search did not identify any documents indicating disposal of a listed hazardous waste in the GLC landfill and no previous samples collected were analyzed for characteristics of hazardous waste. During the Task 3 investigation, subsurface soil samples collected from test borings did not fail any characteristics tests. While analysis for EP Toxicity (metals only) of these samples did detect leachable levels of barium, the concentrations were below regulatory limits.

4.2 SIGNIFICANT THREAT DETERMINATION

NYSDEC regulations pertaining to Inactive Hazardous Waste Sites, 6 NYCRR Part 375, set forth a number of definitions of significant threat (NYSDEC, 1992c). For purposes of the Task 3 investigation, a significant threat would be established by the contravention of environmental quality regulations. Significant threat was evaluated by comparing groundwater analytical results to New York State Class GA Groundwater Quality Standards and surface water sample results to New York State Class D Surface Water Standards set forth under 6 NYCRR Part 700 - 705 (NYSDEC, 1991).

Groundwater samples exceeded New York Class GA standards for iron, manganese, and sodium. Although Class GA standards are set for protection of groundwater suitable as a source of potable water, these compounds do not commonly pose any significant risk to public health. The more stringent New York State and federal maximum contaminant levels, for protection of drinking water supplies, have only promulgated secondary standards for these compounds for aesthetic quality of drinking water.

Total phenolic compounds, copper, and iron were detected at concentrations that exceed New York State Class D surface water quality standards. Copper was detected in a single sample (SW-103) at a concentration greater than its standard. Because sample SW-103 potentially reflected contamination from the GLC storm water sewer system, this exceedance could not be related to the landfill. Iron exceeded the Class D Surface Water standard of 300 μg/L in all samples collected from Pikes Creek. The Class D standard of 1 μg/L for total phenolic compounds was also exceeded in the Pikes Creek samples. However, the highest concentration of phenols and iron was detected in upgradient sample SW-101. Because the standard is exceeded where the creek enters the site, this contravention of standard is not considered to be related to the landfill.

4.3 RECOMMENDATIONS

Information collected during the Task 1 and Task 3 investigations does not document the presence of listed or characteristic hazardous wastes as defined by 6 NYCRR Part 371. Based on these results, it is recommended that the GLC Site be delisted from NYSDEC's Registry of Inactive Hazardous Waste Sites in New York. Based upon this recommendation, PSA Tasks 4 through 6 will not be conducted.

ABB-ES	ABB Environmental Services
ASTM	American Society for Testing and Materials
bgs	below ground surface
CRQL	Contract Required Quantitation Limit
EP	Extraction Procedure
GLC	Great Lakes Carbon
HASP	Health and Safety Plan
ID	inside diameter
NECCO	Niagara Electric-Chemical Company
NSSC	NYSDEC Superfund Standby Contract
NTU	nephelometric turbidity units
NUS	NUS Corporation
NYCRR	New York Codes, Rules, and Regulations
NYSDEC	New York State Department of Environmental Conservation
NYTEST	NYTEST Environmental, Inc.
OD	outside diameter
Parratt-Wolff	Parratt-Wolff, Inc.
PCBs	polychlorinated biphenyls
PID	photoionization detector
Popli	Om P. Popli Associates
PSA	Preliminary Site Assessment
QAPP	Quality Assurance Project Plan
SPDES	State Pollution Discharge Elimination System
SVOCs	semivolatile organic compounds
TCL	Target Compound List
USGS	U.S. Geologic Survey

VOCs	volatile organic compounds
µg/kg	micrograms per kilogram
µg/L	micrograms per liter

E.C. Jordan Co., 1991. *Final Report Task 1: Data Records Search and Assessment, Preliminary Site Assessment, Great Lakes Carbon.* Prepared for the New York Department of Environmental Conservation, Albany, New York. March.

E.C. Jordan Co., 1992a. *Program Quality Assurance Project Plan.* Prepared for the New York Department of Environmental Conservation, Albany, New York. June.

E.C. Jordan Co., 1992b. *Program Quality Health and Safety Plan, Part II, Revision 1.* Prepared for the New York Department of Environmental Conservation, Albany, New York. June.

E.C. Jordan Co., 1992c. *Preliminary Site Assessment, Site Work Plan, Great Lakes Carbon Site, City of Niagara Falls, New York.* Prepared for the New York State Department of Environmental Conservation; Albany, New York. September.

Engineering-Science (E-S), 1989. *Engineering Investigations at Inactive Hazardous Waste Sites, Phase I Investigation, Great Lakes Carbon, Site Number 932016.* Prepared for New York State Department of Environmental Conservation, Division of Solid and Hazardous Waste. January.

Hinton, M., 1992. Telephone conversation between Michael Hinton, P.E., New York State Department of Environment Conservation, Region 9, Buffalo, New York, and Cornelia B. Morin, ABB Environmental Services, Portland, Maine. March 19.

Hopkins, M., 1986. Niagara County Health Department, Interview with Engineering-Science for Phase I Investigation. May 8.

New York State Department of Environmental Conservation (NYSDEC), 1991. *New York Compilation of Rules and Regulations, Title 6, Parts 700-705 - Water Quality Regulations for Surface Waters and Groundwaters.* September.

New York State Department of Environmental Conservation (NYSDEC), 1992a. *New York Compilation of Rules and Regulations, Title 6, Part 371 - Identification and Listing of Hazardous Wastes.* January 31.

New York State Department of Environmental Conservation (NYSDEC), 1992b. *Inactive Hazardous Waste Disposal Sites in New York State*; Volume 9. A Joint Report of the New York State Department of Environmental Conservation and Health. January 31.

New York State Department of Environmental Conservation (NYSDEC), 1992c. *New York Codes, Rules, and Regulations, Title 6, Part 375, Inactive Hazardous Waste Disposal Site Remedial Program*. Effective May.

NUS Corporation (NUS), 1985. *Presentation of Analytical Data From Great Lakes Carbon Corporation*. Prepared for Environmental Services Division, U.S. Environmental Protection Agency. September 27.

Rosene, R.W., 1978. Great Lakes Carbon Corporation, Letter to P.J. Millock, Interagency Task Force on Hazardous Waste. November.

U.S. Environmental Protection Agency, 1985. *Preliminary Evaluation of Chemical Migration to Groundwater and the Niagara River from Selected Waste Disposal Sites.*

APPENDIX A

NYSDEC REGISTRY SITE CLASSIFICATION DECISION FORM

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF HAZARDOUS WASTE REMEDIATION

Original-BHSC
Copy-REGION
Copy-DEE
Copy-DOH
Copy-PREPARER

REGISTRY SITE CLASSIFICATION DECISION

1. SITE NAME	2. SITE NO	3. TOWN/CITY/VILLAGE	4. COUNTY
Great Lakes Carbon	932016	City of Niagara Falls	Niagara

5. REGION 9

6. CLASSIFICATION Current 2a ☒ Proposed: Delist ☐ Unchanged ☐ Modify

7. LOCATION OF SITE (Attached U.S.G.S Topographic Map showing site location)
a. Quadrangle: Tonawanda West
b. Site Latitude: 43° 05' 30" Longitude: 78° 59' 38"
c. Tax Map Number

8. BRIEFLY DESCRIBE THE SITE (Attach site plan showing disposal/sampling locations)

The site is located in an industrial area. The landfill is 5 to 7 feet above natural grade. Surface topography is relatively flat and drainage is toward Pikes Creek on the western border of the landfill. The NECCO Park landfill borders the site to the north.

a. Area 7 acres b. EPA ID Number D000218248

c. Completed (X) Phase I ( ) Phase II (X) PSA ( ) RI/FS (X) PA/SI ( ) Other

9. HAZARDOUS WASTES DISPOSED

There is no documented evidence of hazardous waste (as defined by 6 NYCRR Part 371) disposed of in the GLC inactive landfill.

10. ANALYTICAL DATA AVAILABLE
a. ( ) Air (X) Groundwater (X) Surface Water (X) Soil ( ) Waste (X) EPTox ( ) TCLP

b. Contravention of Standards or Guidance Values

Samples collected in 1992 did not fail EP Toxicity, ignitability, reactivity, or corrosivity testing. Iron, manganese, and sodium detected in groundwater exceeded New York State Class GA Groundwater Quality Standards. Phenols, copper, and iron detected in surface water exceeded New York State Class D Surface Water Quality Standards.

11. JUSTIFICATION FOR CLASSIFICATION DECISION

Based on the information developed during the PSA Task 3 investigation, the presence of a listed or charteristic hazardous waste can not be documented at the Great Lakes Carbon site. Soil samples did not fail characteristic hazardous waste testing.

12. SITE IMPACT DATA

a. Nearest surface water: Distance 10 ft. Direction west Classification Pikes Creek - Class D (?)
b. Nearest groundwater: Depth 7 ft. Flow Direction south ( ) Sole Source ( ) Primary ( ) Principal
c. Nearest water supply: Distance 2.5 mi. Direction southeast Active (X)Yes ( )No
d. Nearest building: Distance 100 ft. Direction west Use Manufacturing

e. In State Economic Development Zone? ( )Y (X)N
f. Crops or livestock on site? ( )Y (X)N
g. Documented fish or wildlife mortality? ( )Y (X)N
h. Impact on special status fish or wildlife resource? ( )Y (X)N
i. Controlled site access? ( )Y (X)N
j. Exposed hazardous waste? ( )Y (X)N
k. HRS Score --
l. For Class 2: Priority Category --

13. SITE OWNER'S NAME	14. ADDRESS	15. TELEPHONE NUMBER
Great Lakes Carbon Corporation	6200 Niagara Falls Boulevard, City of Niagara Falls	(716) 236-2888

16. PREPARER

Cornelia B. Morin 10/07/93
Signature Date

Cornelia B. Morin, Environmental Scientist
ABB Environmental Services
Name, Title, Organization

17. APPROVED

Signature Date

Name, Title, Organization

APPENDIX B

SITE INSPECTION FORM
(USEPA FORM 2070-13)

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 1 - SITE LOCATION AND INSPECTION INFORMATION

EPA

I. IDENTIFICATION	
01 STATE: New York	01 SITE NUMBER: D000218248

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER
Great Lakes Carbon	5600 Niagara Falls Blvd.

03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG. DIST
Niagara Falls	New York	14302	Niagara	063	33

09 COORDINATES LATITUDE	LONGITUDE	10 TYPE OF OWNERSHIP (Check one)
43° 05' 30"._	078° 59' 38"._	X A. PRIVATE _ B. FEDERAL _____ _ C. STATE _ D. COUNTY _ E. MUNICIPAL _ F. OTHER _____ _ G. UNKNOWN

III. INSPECTION INFORMATION

01 DATE OF INSPECTION	02 SITE STATUS	03 YEARS OF OPERATION
10 / 14 / 92 (MONTH DAY YEAR)	_ ACTIVE X INACTIVE	1939 (BEGINNING YEAR) 1966 (ENDING YEAR) ___ UNKNOWN

04 AGENCY PERFORMING INSPECTION (Check all that apply)
_ A. EPA _ B. EPA CONTRACTOR _____ (Name of firm) _ C. MUNICIPAL _ D. MUNICIPAL CONTRACTOR _____ (Name of firm)
_ E. STATE X F. STATE CONTRACTOR ABB Environmental Services (Name of firm) _ G. OTHER _____ (Specify)

05 CHIEF INSPECTOR	06 TITLE	07 ORGANIZATION	08 TELEPHONE NO.
Cornelia B. Morin	Environmental Scientist	ABB Environmental Services	(207) 775-5401
09 OTHER INSPECTORS Nick Migliaccio	10 TITLE Environmental Scientist	11 ORGANIZATION ABB Environmental Services	12 TELEPHONE NO. (617) 245-6606
Sri Maddineni	Environmental Engineer II	NYSDEC	(518) 457-0638
Mike Hinton	Environmental Engineer II	NYSDEC-Region 9	(716) 847-4585
			( )
			( )

13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE	15 ADDRESS	16 TELEPHONE NO.
Mike Reele	Plant Engineer	Great Lakes Carbon, P.O. Box 667 6200 Niagara Falls Blvd. Niagara Falls, New York 14302	(716) 236-2888
			( )
			( )
			( )
			( )
			( )

17 ACCESS GAINED BY (Check one)	18 TIME OF INSPECTION	19 WEATHER CONDITIONS
X PERMISSION ☐ WARRANT	8:30 am	Sunny, approximately 50 °F

IV. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NO.
Sri Maddineni	NYSDEC	(518) 457-0638

04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NO.	08 DATE
Cornelia B. Morin		ABB Environmental Services	(207) 775-5401	10 / 6 / 93 (MONTH DAY YEAR)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION	
01 STATE	01 SITE NUMBER
New York	D000218248

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- X A. SOLID
- X B. POWDER, FINES
- _ C. SLUDGE
- _ D. OTHER _____ (Specify)
- _ E. SLURRY
- _ F. LIQUID
- _ G. GAS

02 WASTE QUANTITY AT SITE
(Measures of waste quantities must be independent)

TONS _____
CUBIC YARDS 79,000
NO. OF DRUMS _____

03 WASTE CHARACTERISTICS (Check all that apply)

- X A. TOXIC
- _ B. CORROSIVE
- _ C. RADIOACTIVE
- X D. PERSISTENT
- _ E. SOLUBLE
- _ F. INFECTIOUS
- _ G. FLAMMABLE
- _ H. IGNITABLE
- _ I. HIGHLY VOLATILE
- _ J. EXPLOSIVE
- _ K. REACTIVE
- _ L. INCOMPATIBLE
- _ M. NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE			
SOL	SOLVENTS			
PSD	PESTICIDES	unknown		
OCC	OTHER ORGANIC CHEMICALS	unknown		carbon/graphite wastes
IOC	INORGANIC CHEMICALS	unknown		
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS			

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04/STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
OCC	2-Methylnaphthalene	91-57-6	landfill	3,700 - 14,000	µg/kg
OCC	Acenaphthene	83-32-9	landfill	17,000 DJJ - 61,000 D	µg/kg
OCC	Anthracene	120-12-7	landfill	35,000 DJ - 99,000 D	µg/kg
OCC	Benzo(a)anthracene	56-55-3	landfill	54,000 DJ - 170,000 D	µg/kg
OCC	Benzo(a)pyrene	50-32-8	landfill	41,000 DJ - 140,000 D	µg/kg
OCC	Benzo(b)fluoranthene	205-99-2	landfill	31,000 DJ - 100,000 D	µg/kg
OCC	Benzo(g,h,i)perylene	191-24-2	landfill	15,000 DJJ - 63,000 D	µg/kg
OCC	Benzo(k)fluoranthene	207-06-9	landfill	32,000 DJ - 100,000 D	µg/kg
OCC	Carbazole	86-74-8	landfill	14,000 J - 31,000 DJJ	µg/kg
OCC	Chrysene	218-01-9	landfill	67,000 DJ - 190,000 D	µg/kg
OCC	Dibenz(a,h)anthracene	55-70-3	landfill	7,300 - 22,000 DJJ	µg/kg
OCC	Dibenzofuran	132-64-9	landfill	12,000 - 31,000 DJJ	µg/kg
OCC	Fluoranthene	206-44-0	landfill	130,000 DJ - 410,000 DEJ	µg/kg
OCC	Fluorene	86-73-7	landfill	22,000 DJ - 47,000 D	µg/kg
OCC	Indeno(1,2,3-	193-39-5	landfill	27,000 DJ - 88,000 D	µg/kg
OCC	Naphthalene	91-20-3	landfill	17,000 - 53,000 D	µg/kg

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Evaluation Report of Initial Data, October 1993, ABB Environmental Services, and references cited therein.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 2 - WASTE INFORMATION (continued)

I. IDENTIFICATION	
01 STATE	01 SITE NUMBER
New York	D000218248

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04/STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
OCC	Phenanthrene	85-01-8	landfill	120,000 DJ - 350,000 DEJ	µg/kg
OCC	Pyrene	129-00-0	landfill	110,000 DJ - 330,000 DEJ	µg/kg
PSD	alpha-BHC	319-84-6	landfill	12 J	µg/kg
PSD	Endrin	72-20-8	landfill	21 J	µg/kg
PSD	Endrin Ketone	--	landfill	29 J - 67 J	µg/kg
OCC	Aroclor-1248	1336-36-3	landfill	1,700	µg/kg
MES	Cadmium	7440-43-9	landfill	0.71 []	mg/kg
MES	Chromium	7440-47-3	landfill	31.2 J - 89.3 J	mg/kg
IOC	Copper	7440-50-8	landfill	11.6 J - 70.6 J	mg/kg
MES	Lead	7439-92-1	landfill	24.3 - 47.3	mg/kg
IOC	Sodium	--	landfill	72.9 [] - 129 []	mg/kg
IOC	Zinc	--	landfill	55.4 J - 232	mg/kg

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Evaluation Report of Initial Data, October 1993, ABB Environmental Services, and references cited therein.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

PART 2 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE: New York	01 SITE NUMBER: D000218248

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 _ A. GROUNDWATER CONTAMINATION — 02 _ OBSERVED (DATE: _____) _ POTENTIAL _ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 0 — 04 NARRATIVE DESCRIPTION

1992 groundwater sample analytical results did not detect any chemical contamination of groundwater.

01 _ B. SURFACE WATER CONTAMINATION — 02 _ OBSERVED (DATE: _____) _ POTENTIAL _ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

1992 surface water sample analytical results did not detect any significant chemical contamination of Pikes Creek.

01 _ C. CONTAMINATION OF AIR — 02 _ OBSERVED (DATE: _____) _ POTENTIAL _ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

Unknown

01 _ D. FIRE/EXPLOSIVE CONDITIONS — 02 _ OBSERVED (DATE: _____) _ POTENTIAL _ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

Unknown

01 _ E. DIRECT CONTACT — 02 _ OBSERVED (DATE: _____) _ POTENTIAL _ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

Facility is fenced and access controlled through facility security.

01 _ F. CONTAMINATION OF SOIL — 02 _ OBSERVED (DATE: _____) _ POTENTIAL _ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

1992 subsurface soil sample results did not detect any significant chemical contamination of soil.

01 _ G. DRINKING WATER CONTAMINATION — 02 _ OBSERVED (DATE: _____) _ POTENTIAL _ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

1992 groundwater and surface water sample analytical results did not detect any significant chemical contamination.

01 _ H. WORKER EXPOSURE/INJURY — 02 _ OBSERVED (DATE: _____) _ POTENTIAL _ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

No record of incidence.

01 _ I. POPULATION EXPOSURE/INJURY — 02 _ OBSERVED (DATE: _____) _ POTENTIAL _ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

No record of incidence.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

PART 2 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	01 SITE NUMBER
New York	D000218248

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 _ J. DAMAGE TO FLORA — 02 _ OBSERVED (DATE: _____) _ POTENTIAL _ ALLEGED
04 NARRATIVE DESCRIPTION

None observed.

01 _ K. DAMAGE TO FAUNA — 02 _ OBSERVED (DATE: _____) _ POTENTIAL _ ALLEGED
04 NARRATIVE DESCRIPTION (Include name(s) of species)

None observed.

01 _ L. CONTAMINATION OF FOOD CHAIN — 02 _ OBSERVED (DATE: _____) X POTENTIAL _ ALLEGED
04 NARRATIVE DESCRIPTION

Not likely.

01 _ M. UNSTABLE CONTAINMENT OF WASTES (Spills/Runoff/Standing liquids, Leaking drums) — 02 _ OBSERVED (DATE: _____) X POTENTIAL _ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

None observed.

01 _ N. DAMAGE TO OFFSITE PROPERTY — 02 _ OBSERVED (DATE: _____) _ POTENTIAL _ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

None observed.

01 _ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 _ OBSERVED (DATE: _____) X POTENTIAL _ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

1992 surface water sample analytical results did not detect any significant chemical contamination of Pikes Creek.

01 _ P. ILLEGAL/UNAUTHORIZED DUMPING — 02 _ OBSERVED (DATE: _____) _ POTENTIAL _ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

None observed. Restricted access to site.

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

Unknown

III. TOTAL POPULATION POTENTIALLY AFFECTED: Unknown

IV. COMMENTS

There is no documentation of hazardous waste disposal. Soil, sediment, and surface water sampling indicates no significant chemical contamination attributable to the landfill.

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Evaluation Report of Initial Data, October 1993, ABB Environmental Services, and references cited therein.

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 4 - PERMIT AND DESCRIPTIVE INFORMATION

EPA

I. IDENTIFICATION	
01 STATE	01 SITE NUMBER
New York	D000218248

II. PERMIT INFORMATION

01 TYPE OF PERMIT ISSUED (Check all that apply)	02 PERMIT NUMBER	03 DATE ISSUED	04 EXPIRATION DATE	05 COMMENTS
_ A. NPDES				
_ B. UIC				
_ C. AIR				
_ D. RCRA				
_ E. RCRA INTERIM STATUS				
_ F. SPCC PLAN				
_ G. STATE (specify)				
_ H. LOCAL (specify)				
X I. OTHER (specify) SPDES	NY0000906			For outfalls none for the site.
X J. NONE				

III. SITE DESCRIPTION

01 STORAGE/DISPOSAL (check all that apply)	02 AMOUNT	03 UNIT OF MEASURE
_ A. SURFACE IMPOUNDMENT		
X B. PILES		
_ C. DRUMS, ABOVE GROUND		
_ D. TANK, ABOVE GROUND		
_ E. TANK, BELOW GROUND		
_ F. LANDFILL		
_ G. LANDFARM		
X H. OPEN DUMP	79,000	cubic yards
_ I. OTHER (specify)		

04 TREATMENT (check all that apply)

- _ A. INCINERATION
- _ B. UNDERGROUND INJECTION
- _ C. CHEMICAL/PHYSICAL
- _ D. BIOLOGICAL
- _ E. WASTE OIL PROCESSING
- _ F. SOLVENT RECOVERY
- _ G. OTHER RECYCLING/RECOVERY
- _ H. OTHER (specify)

05 OTHER

X A. BUILDINGS ONSITE

06 AREA OF SITE

7 (acres)

07 COMMENTS

Volume of waste on-site is approximately 79,000 cubic yards, however, actual quantity of each waste material is unknown. Since 1966, wastes have been hauled off-site by Modern Disposal, Inc. to the Model City Landfill.

IV. CONTAINMENT

01 CONTAINMENT OF WASTES (check one)

_ A. ADEQUATE, SECURE _ B. MODERATE X C. INADEQUATE, POOR _ D. INSECURE, UNSOUND, DANGEROUS

02 DESCRIPTION OF DRUMS, DIKING, LINERS, BARRIERS, ETC.

The landfill is unlined, uncovered, and has no leachate collection systems.

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE: _ YES X NO

02 COMMENTS

Plant facility is fenced and guarded.

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Evaluation Report of Initial Data, October 1993, ABB Environmental Services, and references cited therein.

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

EPA

PART 6 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE	01 SITE NUMBER
New York	D000218248

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY (check as applicable)	SURFACE	WELL
COMMUNITY	A. X	A. _
NON-COMMUNITY	B. _	B. _

02 STATUS		
ENDANGERED	AFFECTED	MONITORED
A. _	B. _	C. _
D. _	E. _	F. _

03 DISTANCE TO SITE
A. 2.5 (mi)
B. _____ (mi)

III. GROUNDWATER

01 GROUNDWATER USE IN VICINITY (check one)

_ A. ONLY SOURCE FOR DRINKING
_ B. DRINKING (other sources available)
COMMERCIAL, INDUSTRIAL, IRRIGATION (No other water sources available)
X C. COMMERCIAL INDUSTRIAL IRRIGATION (Limited other sources available)
_ D. NOT USED, UNUSABLE

02 POPULATION SERVED BY GROUNDWATER 0

03 DISTANCE TO NEAREST DRINKING WATER WELL > 3 (mi)

04 DEPTH TO GROUNDWATER	05 DIRECTION OF GROUNDWATER FLOW	06 DEPTH TO AQUIFER OF CONCERN	07 POTENTIAL YIELD OF AQUIFER	08 SOLE SOURCE AQUIFER
6 (ft)	south - southwest	> 40 (ft)	unknown (gpd)	_ YES X NO

09 DESCRIPTION OF WELLS (including usage, depth, and location relative to population and buildings)

No known users of groundwater within 3 miles of site except non-contact industrial cooling water on Buffalo Avenue.

10 RECHARGE AREA		11 DISCHARGE AREA	
_ YES X NO	COMMENTS	_ YES _ NO	COMMENTS - Unknown

IV. SURFACE WATER

01 SURFACE WATER USE (Check one)

X A. RESERVOIR, RECREATION DRINKING WATER SOURCE
_ B. IRRIGATION, ECONOMICALLY IMPORTANT RESOURCES
_ C. COMMERCIAL INDUSTRIAL
_ D. NOT CURRENTLY USED

02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER

NAME:	AFFECTED	DISTANCE TO SITE
Pikes Creek (unconfirmed name)	X	< 100 feet
Niagara River	_	1.1 (mi)
	_	(mi)

V. DEMOGRAPHIC AND PROPERTY INFORMATION

01 TOTAL POPULATION WITHIN

ONE (1) MILE OF SITE	TWO (2) MILES OF SITE	THREE (3) MILES OF SITE
A. 5,902 NO. OF PERSONS	B. 36,756 NO. OF PERSONS	C. 72,452 NO. OF PERSONS

02 DISTANCE TO NEAREST POPULATION
¼ - ½ (mi)

03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE
9,673

04 DISTANCE TO NEAREST OFF-SITE BUILDING
< ¼ (mi)

05 POPULATION WITHIN VICINITY OF SITE (Provide narrative description of nature of population within vicinity of site, e.g., rural, village, densely populated urban area)

Commercial and industrial area. Population consists of workers. Residential area ≈ ¼ to ½ mile from site.

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION	
01 STATE: New York	01 SITE NUMBER: D000218248

VI. ENVIRONMENTAL INFORMATION

01 PERMEABILITY OF UNSATURATED ZONE (Check one)

_ A. 10^{-6} - 10^{-8} cm/sec X B. 10^{-4} - 10^{-6} cm/sec _ C. 10^{-4} - 10^{-3} cm/sec _ D. GREATER THAN 10^{-3} cm/sec

02 PERMEABILITY OF BEDROCK (Check one)

_ A. IMPERMEABLE (less than 10^{-6} cm/sec) X B. RELATIVELY IMPERMEABLE (10^{-4} - 10^{-6} cm/sec) _ C. RELATIVELY PERMEABLE (10^{-2} - 10^{-4} cm/sec) _ D. VERY PERMEABLE (Greater than 10^{-2} cm/sec)

03 DEPTH TO BEDROCK	04 DEPTH OF CONTAMINATED SOIL ZONE	05 SOIL Ph	
10 - 20 (ft)	landfilled material ~ 6 ft deep (ft)	unknown	

06 NET PRECIPITATION	07 ONE YEAR 24 HOUR RAINFALL	08 SLOPE		
		SITE SLOPE	DIRECTION OF SITE SLOPE	TERRAIN AVERAGE SLOPE
9 (in)	2.1 (in)	0 - 10 %	Towards Pikes Creek	30 - 45 %

09 FLOOD POTENTIAL

SITE IS IN > 500 YEAR FLOODPLAIN

10

_ SITE IS ON BARRIER ISLAND, COASTAL HIGH HAZARD AREA, RIVERAIN FLOODWAY

11 DISTANCE TO WETLANDS (5 acre minimum)

ESTUARINE	OTHER
A. > 3 (mi)	B. 1.1 (mi)

12 DISTANCE TO CRITICAL HABITAT (of endangered species)

> 3 (mi)

ENDANGERED SPECIES: N/A

13 LAND USE IN VICINITY

DISTANCE TO:

COMMERCIAL/INDUSTRIAL	RESIDENTIAL AREAS; NATIONAL/STATE PARKS, FORESTS, OR WILDLIFE RESERVES	AGRICULTURAL LANDS	
		PRIME AG LAND	AG LAND
A. 0 - ¼ (mi)	B. ¼ - ½ (mi)	C. > 3 (mi)	D. > 3 (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

The disposal site is a 7-acre area existing on the Great Lakes Carbon property. Previous landfilling consisted of graphite carbon and sand placed above ground surface to a height of 5-7 feet. Area is graded, flat, and uncovered with no cap. Site is currently used as a stockpile area for product, feedstock, equipment parts, and temporary storage of wastes.

VII. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Evaluation Report of Initial Data, October 1993, ABB Environmental Services, and references cited therein.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 6 - SAMPLE AND FIELD INFORMATION

I. IDENTIFICATION	
01 STATE	01 SITE NUMBER
New York	D000218248

II. SAMPLES TAKEN

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
GROUNDWATER	2	NYTEST Environmental, Inc	Included in Report
SURFACE WATER	4	NYTEST Environmental, Inc	Included in Report
WASTE	7	NYTEST Environmental, Inc	Included in Report
AIR			
RUNOFF			
SPILL			
SOIL	1	NYTEST Environmental, Inc	Included in Report
VEGETATION			
OTHER			

III. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS
Photoionization Detector	No volatile organics were detected above 1 ppm.
Particulate monitoring	Background
Temperature - SW Temperature - GW	8.3 - 21.1 °C 10.5 - 11.7 °C
pH - Surface Water pH - Groundwater	8.08 - 9.92 6.04 - 6.37
Specific Conductivity - SW Specific Conductivity - GW	286 - 1072 µmhos/cm 200 - 1006 µmhos/cm

IV. PHOTOGRAPHS AND MAPS

01 TYPE X GROUND _ AERIAL

02 IN CUSTODY OF ABB Environmental Services
(Name of organization or individual)

03 MAPS
X YES
_ NO

04 LOCATION OF MAPS
Sri Maddineni, NYSDEC, Albany, New York

V. OTHER FIELD DATA COLLECTED (Provide narrative description)

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Evaluation Report of Initial Data, October 1993, ABB Environmental Services, and references cited therein.

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 7 - OWNER INFORMATION

EPA

I. IDENTIFICATION	
01 STATE	01 SITE NUMBER
New York	D000218248

II. CURRENT OWNER(S)			PARENT COMPANY (If applicable)		
01 NAME Great Lakes Carbon Corp.	02 D+B NUMBER		08 NAME Great Lakes Carbon Corp.	09 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.) 6200 Niagara Falls Blvd.	04 SIC CODE		10 STREET ADDRESS (P.O. Box, RFD #, etc.) 320 Old Briarcliff Manor	11 SIC CODE	
05 CITY Niagara Falls	06 STATE New York	07 ZIP CODE 14302	12 CITY Briarcliff Manor	13 STATE New York	14 ZIP CODE 10510
01 NAME	02 D+B NUMBER		08 NAME	09 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE		10 STREET ADDRESS (P.O. Box, RFD #, etc.)	11 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE	12 CITY	13 STATE	14 ZIP CODE
01 NAME	02 D+B NUMBER		08 NAME	09 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE		10 STREET ADDRESS (P.O. Box, RFD #, etc.)	11 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE	12 CITY	13 STATE	14 ZIP CODE
01 NAME	02 D+B NUMBER		08 NAME	09 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE		10 STREET ADDRESS (P.O. Box, RFD #, etc.)	11 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE	12 CITY	13 STATE	14 ZIP CODE

III. PREVIOUS OWNER(S) (List most recent first)			IV. REALTY OWNER(S) (If applicable; list most recent first)		
01 NAME Great Lakes Coal and Coke	02 D+B NUMBER		01 NAME	02 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE		03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE
01 NAME	02 D+B NUMBER		01 NAME	02 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE		03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE
01 NAME	02 D+B NUMBER		01 NAME	02 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE		03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Evaluation Report of Initial Data, October 1993, ABB Environmental Services, and references cited therein.

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 8 - OPERATOR INFORMATION

EPA

I. IDENTIFICATION	
01 STATE: New York	01 SITE NUMBER: D00021824

II. CURRENT OPERATOR (Provide if different from owner)

01 NAME	02 D+B NUMBER
Great Lakes Carbon Corp.	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
6200 Niagara Falls Blvd.	

05 CITY	06 STATE	07 ZIP CODE
Niagara Falls	New York	14302

08 YEARS OF OPERATION	09 NAME OF OWNER
1939 - Present	Mike Reele - Plant Engineer

OPERATOR'S PARENT COMPANY (If applicable)

10 NAME	11 D+B NUMBER
Great Lakes Carbon Corp.	

12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE
320 Briarcliff Road	

14 CITY	15 STATE	16 ZIP CODE
Briarcliff Manor	New York	10510

III. PREVIOUS OPERATOR(S) (List most recent first; provide only if different from owner)

01 NAME	02 D+B NUMBER
Great Lakes Coal and Coke	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER
19??-1939	Unknown

PREVIOUS OPERATOR'S PARENT COMPANIES (If applicable)

10 NAME	11 D+B NUMBER

12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER

10 NAME	11 D+B NUMBER

12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER

10 NAME	11 D+B NUMBER

12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

IV. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Evaluation Report of Initial Data, October 1993, ABB Environmental Services, and references cited therein.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 9 - GENERATOR/TRANSPORTER INFORMATION

I. IDENTIFICATION	
01 STATE: New York	01 SITE NUMBER: D000218248

II. ON-SITE GENERATOR

01 NAME	02 D+B NUMBER	
Great Lakes Carbon Corp.		
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	
6200 Niagara Falls Blvd.		
05 CITY	06 STATE	07 ZIP CODE
Niagara Falls	New York	14302

III. OFF-SITE GENERATOR(s)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	05 CITY	06 STATE / 07 ZIP CODE
01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	05 CITY	06 STATE / 07 ZIP CODE

IV. TRANSPORTER(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	05 CITY	06 STATE / 07 ZIP CODE
01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	05 CITY	06 STATE / 07 ZIP CODE

IV. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Evaluation Report of Initial Data, October 1993, ABB Environmental Services, and references cited therein.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION	
01 STATE	01 SITE NUMBER
New York	D000218248

II. PAST RESPONSE ACTIVITIES

01 _ A. WATER SUPPLY CLOSED	02 DATE _____	03 AGENCY _____	
04 DESCRIPTION			
Unknown			
01 _ B. TEMPORARY WATER SUPPLY PROVIDED	02 DATE _____	03 AGENCY _____	
04 DESCRIPTION			
Unknown			
01 _ C. PERMANENT WATER SUPPLY PROVIDED	02 DATE _____	03 AGENCY _____	
04 DESCRIPTION			
Unknown			
01 _ D. SPILLED MATERIAL REMOVED	02 DATE _____	03 AGENCY _____	
04 DESCRIPTION			
Unknown			
01 _ E. CONTAMINATED SOIL REMOVED	02 DATE _____	03 AGENCY _____	
04 DESCRIPTION			
Unknown			
01 _ F. WASTE REPACKAGED	02 DATE _____	03 AGENCY _____	
04 DESCRIPTION			
Unknown			
01 _ G. WASTE DISPOSED ELSEWHERE	02 DATE _____	03 AGENCY _____	
04 DESCRIPTION			
Unknown			
01 _ H. ON SITE BURIAL	02 DATE _____	03 AGENCY _____	
04 DESCRIPTION			
Unknown			
01 _ I. IN SITU CHEMICAL TREATMENT	02 DATE _____	03 AGENCY _____	
04 DESCRIPTION			
Unknown			
01 _ J. IN SITU BIOLOGICAL TREATMENT	02 DATE _____	03 AGENCY _____	
04 DESCRIPTION			
Unknown			
01 _ K. IN SITU PHYSICAL TREATMENT	02 DATE _____	03 AGENCY _____	
04 DESCRIPTION			
Unknown			
01 _ L. ENCAPSULATION	02 DATE _____	03 AGENCY _____	
04 DESCRIPTION			
Unknown			
01 _ M. EMERGENCY WASTE TREATMENT	02 DATE _____	03 AGENCY _____	
04 DESCRIPTION			
Unknown			
01 _ N. CUTOFF WALLS	02 DATE _____	03 AGENCY _____	
04 DESCRIPTION			
Unknown			
01 _ O. EMERGENCY DIKING/SURFACE WATER DIVERSION	02 DATE _____	03 AGENCY _____	
04 DESCRIPTION			
Unknown			
01 _ P. CUTOFF TRENCHES/SUMP	02 DATE _____	03 AGENCY _____	
04 DESCRIPTION			
Unknown			
01 _ Q. SUBSURFACE CUTOFF WALL	02 DATE _____	03 AGENCY _____	
04 DESCRIPTION			
Unknown			

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION	
01 STATE: New York	01 SITE NUMBER: D000218248

II. PAST RESPONSE ACTIVITIES (Continued)

01 _ R. BARRIER WALLS CONSTRUCTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
Unknown

01 _ S. CAPPING/COVERING — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
Unknown

01 _ T. BULK TANKAGE REPAIRED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
Unknown

01 _ U. GROUT CURTAIN CONSTRUCTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
Unknown

01 _ V. BOTTOM SEALED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
Unknown

01 _ W. GAS CONTROL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
Unknown

01 _ X. FIRE CONTROL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
Unknown

01 _ Y. LEACHATE TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
Unknown

01 _ Z. AREA EVACUATED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
Unknown

01 _ 1. ACCESS TO SITE RESTRICTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
Unknown

01 _ 2. POPULATION RELOCATED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
Unknown

01 _ 3. OTHER REMEDIAL ACTIVITIES — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
Unknown

IV. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Evaluation Report of Initial Data, October 1993, ABB Environmental Services, and references cited therein.

EPA	POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT PART 11 - ENFORCEMENT INFORMATION	I. IDENTIFICATION	
		01 STATE New York	01 SITE NUMBER D000218248

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY/ENFORCEMENT ACTION X YES _ NO

02 DESCRIPTION OF FEDERAL, STATE, LOCAL REGULATORY/ENFORCEMENT ACTION

Phase I Investigation Engineering-Science, 1989 for New York State Department of Environmental Conservation.

Phase I Investigation NUS Corporation, 1985 for USEPA.

October 1992: New York State Department of Environmental Conservation Preliminary Site Assessment Task 3 Field Investigation.

III. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Evaluation Report of Initial Data, October 1993, ABB Environmental Services, and references cited therein.

APPENDIX C

NEW YORK STATE
CLASS D SURFACE WATER STANDARD CALCULATIONS

Appendix C
New York State Class D Surface Water Quality Standard Calculations

Great Lakes Carbon Site
City of Niagara Falls, New York

	Unit	SW-101	SW-102	SW-103	SW-103D	SW-104
Ca	mg/L	198	32	64.1	55.4	15.5
Mg	mg/L	35.1	8.16	13.3	15.5	43.6
Hardness[1]	ppm	638.95	113.51	214.83	202.16	218.25
ln Hardness		6.46	4.73	5.37	5.31	5.39
CHROMIUM						
exp(0.819[ln hardness]+3.688)	µg/L	7931.48	1926.38	3248.32	3090.63	3290.63
Analytical Value	µg/L	16.6 J	--	--	--	10.2 J
COPPER						
exp(0.9422[ln hardness]-1.464)	µg/L	101.74	19.97	36.43	34.41	36.98
Analytical Value	µg/L	5.2 []	14.7 []	48.7 J	26.6	--
LEAD						
exp(1.266[ln hardness]-1.416)	µg/L	864.49	96.98	217.50	201.40	221.90
Analytical Value	µg/L	9.6	--	6.2 J	3.7 J	3.3
ZINC						
exp(0.83[ln hardness]+1.95)	µg/L	1497.65	356.90	606.05	576.24	614.05
Analytical Value	µg/L	43.9	--	36.7 J	16.2 []J	14.7 []

NOTES:

[1] Hardness calculated as: $CaCO_3/L = 2.497[Ca(mg/L)] + 4.118[Mg(mg/L)]$